THE PREDICTIVE UTILITY OF PERSONALITY FACETS IN EXAMINING RISK AND RESILIENCY IN TRANSIENT AND CHRONIC STRESS

Beth M. Janis, M.S.

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APPROVED:

Jennifer L. Callahan, Major Professor
Camilo Ruggero, Co-Chair
Randall J. Cox, Committee Member
Vicki Campbell, Chair of the Department of Psychology
David Holdeman, Dean of the College of Arts and Sciences
Victor Prybutok, Dean of the Toulouse Graduate School

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Chronic or prolonged stress has been shown to have deleterious impacts on mental health, physical health, and cognitive functioning. However, not all individuals show the negative effects of continued exposure to stress. Past research has identified personality as a contributor to resiliency, while also identifying it as an important predictor of negative outcomes, such as psychopathology. More recently, personality researchers have emphasized the importance of examining personality at the level of specific underlying facets, as it can provide a more refined and predictive picture than higher-order personality traits. The current study examined the predictive utility of personality facets in regard to risk and resiliency in high-achieving individuals exposed to transient and chronic stress. Results indicated personality facets provided strong prediction of mental health and behavioral functioning outcomes, and added to the understanding of the association among personality and functioning. In particular, hierarchical linear modeling analyses identified significant risk and protective facets prior to the inclusion of stress and also when interacting with stress. The implications of these analyses, such as identification of particular strategies for boosting protective facets and limiting harmful facets, is discussed.

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CHAPTER 1

INTRODUCTION

Stress and Resilience

Research examining stress and adversity has discovered a multitude of deleterious impacts of stress, particularly related to exposure to chronic or prolonged stress. Specifically, studies have found that high levels of perceived stress have been associated with poorer mental health (Newbury-Birch & Kamali, 2001; Schwab-Reese, Schafer, & Ashida, 2017), lower subjective well-being (Gillett & Crisp, 2017), and burnout (De Francisco, Arce, del Pilar Vílchez, & Vales, 2016). Prolonged or chronic stress has been found to be related to mental health difficulties, such as internalizing disorders (Steinhardt, Smith Jaggars, Faulk, & Gloria, 2011), posttraumatic stress symptoms (van der Ploeg, Dorresteijn, & Kleber, 2003), fatigue (van der Ploeg et al., 2003), burn out (Steinhardt et al., 2011), decision-making difficulties (Landolt et al., 2017), structural brain changes (McEwen, 2012), and poorer physical health/chronic disease (Chandola, Brunner, & Marmot, 2006; Jood, Redfors, Rosengren, Blomstrand, & Jern, 2009; Salonen, Arola, Nygård, & Huhtala, 2008).

Chronic stress stemming from occupational demands, and its negative impact, has been researched in a variety of professions, including with teachers (Kokkinos, 2007), medical students (Backović, Živojinović, Maksimović, & Maksimović, 2012; Midtgaard, Ekeberg, Vaglum, & Tyssen, 2008), police officers (Maran, Verettoc, Zedda, & Ieraci, 2015), forensic doctors (van der Ploeg et al., 2003), and astronauts (Endler, 2004; Manzey & Lorenz, 1999), to name just a few. Studies have focused on the chronic demands and stressors encountered in many of these occupations, highlighting the impact stress may have on functioning. Specifically, the demand-control model (Karasek, 1979) of job strain is commonly utilized in job stress

research and has conceptualized mental strain as occurring when an occupation contains high job demands but low job decision latitude (i.e., the amount of potential control over workplace tasks, pertaining to task performance and the use of skills) (Karasek, 1979; Karasek, Baker, Marxer, Ahlbom, & Theorell, 1981; Törnroos et al., 2013), which has also been linked to greater job dissatisfaction (Karasek, 1979). Various work stressors have been associated with poorer psychological health, including long work hours, lack of control over work/lack of participation in decision making, work overload and pressure, poor social support, and lack of clarity regarding management and work role (Michie & Williams, 2003).

High job demands and stressors are inherent in the training and occupations of students and professionals within the fields of science, technology, engineering, and mathematics (STEM) (Backović et al., 2012; Manzey & Lorenz, 1999; Midtgaard et al., 2008), and high levels of stress have been reported in these groups (Abdulghani, Al-harbi, & Irshad, 2015; Toews, Lockyer, Dobson, & Brownell, 1993). For example, a study of healthcare professional students found perceived stress rates that were approximately double that found in the general population (Bidwal, Ip, Shah, & Serino, 2015). Similarly, elevated levels of perceived stress were reported by medical students, medical residents, and science graduate students, with graduate students reporting the highest levels of stress (Toews et al., 1993). Heightened levels of stress have also been shown to relate to lower levels of brain plasticity in medical students (Concerto et al., 2017). Studies examining chronic occupational stress have also focused specifically on astronauts. For example, a variety of components of the spaceflight mission have been discussed in regard to astronauts and scientists, including stressors experienced during training, spaceflight, and re-integration after return (Endler, 2004). More specifically, factors associated with their living situation during spaceflight (e.g., isolation, monotony, restricted interpersonal contacts)

have been explored in terms of their association to stress (Manzey & Lorenz, 1999). Given the high demands of spaceflight, and the chronicity of the associated demands, understanding factors that may contribute to an individual's ability to cope with stressors can provide an important opportunity for selection, and potentially, subsequent intervention.

Particularly relevant to the current study, researchers have also examined the role personality plays in the perception of work-related stress, finding that high neuroticism, low openness, and low conscientiousness were associated with high job strain (low extraversion and low agreeableness also showed significant associations when personality traits were entered individually into analyses; Törnroos et al., 2013). Further, results identified personality associations with perceptions of high job demands (high neuroticism, high extraversion) and low job control (high neuroticism, low extraversion, low openness, low conscientiousness). These findings highlight the importance of examining work-place characteristics and individual characteristics (e.g., personality) when seeking understanding and intervention for work-related stress. Generally, across stressors, trauma, and adversity, research has shown that not all individuals experience negative effects of stress and trauma. Rather, some individuals have demonstrated high levels of resiliency in the face of stress and adversity (Connor & Davidson, 2003; Crane & Searle, 2016; Mealer, Jones, Newman, McFann, Rothbaum, & Moss, 2012). The current study seeks to examine the role individual differences (i.e., personality) play in responding to stress in high-achieving individuals exposed to chronic occupational stress.

Resilience to Stress

Resilience has been identified as a multidimensional characteristic that aids an individual in maintaining relatively stable psychological and physical functioning, despite exposure to

adverse, traumatic, or stressful events (Bonanno, 2004; Connor & Davidson, 2003). It has been conceptualized as an innate resource that can aid individuals in coping with and growing from stress (Grafton, Gillespie, & Henderson, 2010), though it is viewed by others as a trait that can be fostered and developed over time (Yonezawa, Jones, & Singer, 2011). Researchers with the latter perspective on resiliency posit that resiliency develops from the interactions between an individual and the supportive contexts in their environment (Yonezawa et al., 2011). Further, belief that resiliency is a learnable trait has ignited the emergence of resiliency training programs that have focused on building resiliency skills, such as strengthening problem-solving skills, improving emotion regulation, utilizing resources, and shaping cognitive appraisal of stressful events (Grotberg, 1998; Peng et al., 2014). Notably, studies examining resiliency training programs have supported the notion that resilience can be learned and supported (Arnetz, Nevedal, Lumley, Backman, & Lublin, 2009; Brennan & McGrady, 2015; Peng et al., 2014; Rose et al., 2013).

Research has identified multiple pathways that contribute to resiliency in the face of stress, such as interpersonal and intrapersonal factors (Lee, Sudom, & Zamorski, 2013). In terms of interpersonal factors, exposure to supportive environments/positive social interaction, having fewer stressors, an efficient use of resources, and the presence of compensating experiences have been identified as protective factors (Baruth & Carroll, 2002; Lee et al., 2013; Werner, 1996). Intrapersonally, personality characteristics such as adaptable personality, the trait of self-enhancement, positive emotionality and laughter, high levels of self-esteem and competence, orientation toward achievement, the trait of social responsibility, mastery, and the trait of hardiness have been identified as important contributors to resiliency (Baruth & Carroll, 2002; Bonanno, 2004; Lee et al., 2013; Werner, 1996). In addition, the five broad personality traits that

comprise the Five-Factor Model have also been examined in relation to resiliency, with conscientiousness and emotional stability (the inverse of neuroticism) identified as relating to post-deployment mental health (Lee et al., 2013). Studies have also examined the role of coping strategies, with some attesting to the frequency of resilient individuals utilizing active problem-solving and coping strategies (Dumont & Provost, 1999), whereas others have posited that a repressive coping strategy in the face of extreme adversity may be beneficial (Bonanno, 2004).

Resiliency has also been examined in terms of high achievers in pressured and stressful work environments. For example, in a study examining the characteristics of high-achieving individuals, six themes emerged: 1) the presence of a positive and proactive personality, 2) viewing challenges as a learning opportunity and drawing upon past experiences, 3) having a sense of control, 4) being flexible and adaptable, 5) maintaining a balance between work and other aspects of life and having a sense of perspective in life, and 6) perceiving high quality social support (Sarkar & Fletcher, 2014). In an occupational setting, challenge stressors (i.e., job demands that provide an opportunity for growth and development) have been shown to contribute to the development of resilience, whereas hindrance stressors (i.e., demands that serve as barriers to accomplishment and growth) negatively predict resilience (Crane & Searle, 2016).

Importantly, resiliency has been shown to buffer against the negative impacts of stress in a variety of situations, such as protecting against role stress and burnout in teachers (Richards, Levesque-Bristol, Templin, & Graber, 2016), buffering against burnout in civil servants (Hao, Hong, Xu, Zhou, & Xie, 2015), lessening psychological stress in construction workers (Chen, McCabe, & Hyatt, 2017), and protecting against posttraumatic stress symptoms and burnout in intensive care unit nurses (Mealer et al., 2012). Resiliency has also been shown to influence psychological empowerment, situational stress, and job satisfaction (Larrabee et al., 2010).

Of particular interest to the current study is the identification of personality traits that contribute to resiliency in the face of chronic stress and/or adversity. Research has highlighted the importance of adaptive personality traits (Baruth & Carroll, 2002; Bonanno, 2004; Lee et al., 2013) and has examined the role of higher-order personality traits in relation to resilience (Lee et al., 2013). Asendorpf–Robins–Caspi (ARC) personality types, which identify three broad types (i.e., resilient, undercontrolled, and overcontrolled) have conceptualized the resilient personality type as having low traits of neuroticism and higher than average traits of conscientiousness, agreeableness, openness, and extraversion (Chapman & Goldberg, 2011), though the Big Five personality domains predicted longitudinal outcomes equivalently or slightly better than the ARC personality prototypes (Chapman & Goldberg, 2011). Further, the Five-Factor Model personality traits were also shown to better predict adolescent adjustment than resilience scales (Waaktaar & Torgersen, 2010), further supporting the necessity of examining resilience and adjustment to stressors in relation to specific personality features. Thus, a central aim of the current study is to investigate the role of personality in predicting risk and resilience in chronic stress situations.

Hardiness, another personality trait related to resilience, was initially defined by Kobasa (1979) as being characterized by three prominent features: 1) belief in the ability to control or influence their experiences (i.e., internal locus of control), 2) a deep commitment or involvement in life activities (i.e., life and work commitment), and 3) the view of change as an exciting challenge in life that can promote growth. While all of these domains of hardiness are important for resiliency, studies have especially emphasized the importance of the commitment aspect (Fyhn, Fjell, & Johnsen, 2016). In addition, given their outlook on life, hardy individuals are conceptualized as being less likely to view challenges as threatening (Bonanno, 2004).

Hardiness has been identified as a protective or resiliency factor that can aid in buffering the impact of stress or adverse experiences, such as war-related experiences on posttraumatic stress symptomology (Bartone, 2000), and has been shown to protect against stress and symptoms of illness (Dolbier, Smith, & Steinhardt, 2007) and burnout (Fyhn et al., 2016). In fact, hardiness was found to contribute to variance in police investigator burnout above and beyond that of social support, work engagement, and meaningfulness (Fyhn et al., 2016). Examination of the personality traits and facets that may contribute to a predisposition toward hardiness, as well as toward resilience in general, can provide a more refined understanding of risk and resiliency, thus better allowing for tailored interventions to help boost effective coping and management in the face of stress.

Personality Traits

In the quest to better understand individual differences that may contribute to the way someone responds or reacts to situations, personality has emerged as an important predictor (Lee et al., 2013; Sarkar & Fletcher, 2014). In the broader literature, personality has commonly been understood and assessed through use of the Five-Factor Model, a hierarchical structure of personality that posits that personality is organized through five higher-order personality traits, each of which has smaller personality facets underlying each domain (Costa & McCrae, 1992; Digman, 1990). The five broad domains identified within the Five-Factor Model include Neuroticism, Extraversion, Openness to Experience, Agreeableness, and Conscientiousness (McCrae & Costa, 1997; McCrae & John, 1992), with up to six facets underlying each of these broader domains. Additionally, this model of personality has been used widely across the world and has held up in cross-cultural studies, supporting the universality of this personality structure

(McCrae & Costa, 1997; McCrae, Costa, del Pilar, Rolland, & Parker, 1998; Yamagata et al., 2006). However, other researchers have argued against the five-factor structure being the best fit for personality across cultures (Laher, 2013) and have attested to the need for caution when interpreting personality cross-culturally, due to concerns regarding differential item functioning and item-level noninvariance (Church, Alvarez, Mai, French, Katigbak, & Ortiz, 2011). Still, the Five-Factor Model remains one of the most widely used structures for interpreting personality and its influences.

Given the widespread popularity of the Five-Factor Model of personality, various measures have been developed to assess for the higher-order personality traits and lower-order personality facets included in the model (see Widiger & Trull, 1997). Despite the wide usage of this model, the particular facets underlying each of the five broad traits and the way they are measured have differed across measures (Goldberg, 1999; Watson, Stasik, Ellickson-Larew, & Stanton, 2015). Thus, this can make it difficult to compare outcomes across studies. In the current study, personality is assessed using the Faceted Inventory of the Five-Factor Model (Naragon-Gainey, Watson, & Markon, 2009; Watson, Nus, & Wu, 2017), which has been shown to have strong convergent and discriminant validity with other popular measures of personality, such as the Big Five Inventory, the NEO Personality Inventory (revised and third editions), and the Personality Inventory for DSM-5 (Watson et al., 2017). In addition to the facets underlying the traditional five higher-order personality traits, this scale includes additional facets not associated with a particular personality domain (e.g., Dependency, Emotional Resonance, Unusual Experiences, Eccentric Beliefs) (Watson et al., 2015).

Personality Facets

More recently, researchers have moved beyond focusing on the broad domains of personality and have begun to examine underlying personality facets, positing that examination of these different facets comprising each domain may provide a more refined, and thus more predictive, picture of personality (Paunonen, 2003; Watson et al., 2015). In particular, researchers have pointed to the importance of maintaining and examining the trait-specific variance of each facet, as the personality facets underlying each of the broader domains do not correlate perfectly with one another or with the overarching personality domain (Costa & McCrae, 1995; Jang, McCrae, Angleitner, Riemann, & Livesley, 1998; Paunonen & Jackson, 2000). Assessment of personality at a facet level thus preserves the trait-specific variance, which can be lost or muted when personality facets are aggregated into broader higher-order domains of personality (Paunonen, 2003; Paunonen, Haddock, Forsterling, & Keinonen, 2003). For example, studies have found the emergence of specific facets as significant predictors when the larger personality domain is nonsignificant, such as in the case of openness to experience, the facet of understanding, and GPA in a university sample (Paunonen & Ashton, 2001b), as well as cases in which the overall personality domain is a significant predictor but to a substantially lesser degree than its underlying facet(s) (Watson et al., 2015), further emphasizing the potential of facet aggregation to cause a loss in predictive ability. Indeed, personality facets have provided large portions of criterion variance not predicted by the higher-order personality traits (Paunonen & Ashton, 2001a), thus improving the overall predictive ability of personality and allowing for more comprehensive and more refined analysis and prediction.

Research has supported the predictive utility of examining the underlying personality facets of the five-factor model, as studies have found that personality facets have served as better

predictors for a variety of outcomes, such as behaviors (Paunonen & Ashton, 2001a) and personality disorder diagnoses (Reynolds & Clark, 2001), and have contributed significantly greater criterion validity over broad personality traits (Ashton, Jackson, Paunonen, Helmes, & Rothstein, 1995). Given the ability of higher-order personality traits to disguise, mute, or lose the predictive utility of its underlying facets, and the immense predictive utility of examining personality at the facet-level, the current study sought to expand upon prior research by assessing the predictive utility of personality facets in transient and chronic stress situations.

Personality and Psychopathology

Personality Traits and Psychopathology

The extant literature has long supported the association between personality traits and mental health difficulties (Kotov, Gamez, Schmidt, & Watson, 2010; Robinson, Larson, & Cahill, 2014; Watson & Naragon-Gainey, 2014; Uliaszek, Al-Dajani, & Bagby, 2015). For example, studies have attested to the relationship between personality and psychopathology such as depression (Naragon-Gainey & Watson, 2014), including both the onset and the course of depression (Klein, Kotov, & Bufferd, 2011), posttraumatic stress (Robinson et al., 2014), anxiety disorders (Kotov, Watson, Robles, & Schmidt, 2007) and their first onsets (Goldstein, Kotov, Perlman, & Watson, 2017), obsessive-compulsive symptoms in individuals with psychotic disorders (Schirmbeck et al., 2015), and personality disorders (Bagby, Sellbom, Costa, & Widiger, 2008), to name just a few. Not surprisingly, neuroticism/negative emotionality has consistently emerged as a strong and robust predictor of psychopathology across studies (Robinson et al., 2014).

Broadly, personality traits have been prospectively linked to both internalizing (i.e., neuroticism trait) and externalizing (i.e., low agreeableness, low conscientiousness) disorders (Mezquita, Ibáñez, Villa, Fañanás, Moya-Higueras, & Ortet, 2015). Additional studies have indicated that personality traits such as neuroticism/negative emotionality, (low) extraversion/positive emotionality, and (low) conscientiousness have been found to be related to both the onset (Goldstein et al., 2017; Klein et al., 2011) and course of depression (Klein et al., 2011). Onset of anxiety disorders has also been predicted by higher-order personality traits; in particular, neuroticism has predicted GAD, whereas low conscientiousness has also predicted specific phobia in adolescent girls (Goldstein et al., 2017).

A comprehensive meta-analysis further elucidated the relationship among higher-order personality traits and psychopathology (Kotov et al., 2010), through examining six personality traits stemming from the Big Three and the Big Five personality traits and their association with externalizing disorders (e.g., substance use disorders) and internalizing disorders, including distress-related disorders (i.e., MDD, dysthymic disorder, GAD, PTSD) and fear-related disorders (i.e., panic disorder, agoraphobia, social phobia, specific phobia). Summarizing their results, Kotov et al. (2010) found that neuroticism was positively related to all psychopathology outcomes studied and emerged as the strongest predictor, as expected, whereas conscientiousness was negatively related to all forms of psychopathology and was identified as the second strongest predictor. Extraversion, agreeableness, and openness provided mixed results in regard to their relationships with psychopathology. However, dysthymic disorder and social phobia had the largest negative effect sizes for extraversion, whereas agreeableness was negatively related to some substance use disorders (e.g., mixed use, drug use) and openness was negatively related to dysthymic disorder and agoraphobia. Disinhibition was found to relate to substance use

disorders, OCD, and dysthymic disorder, though those results were based off fewer studies (for more information regarding their findings, reference Kotov et al., 2010).

In addition to correlational and predictive relationships, personality traits have also been found to moderate and/or mediate the relationship between stressors and psychopathology. For example, personality traits (e.g., negative emotionality and positive emotionality) moderated the relationship between stress symptoms resulting from Hurricane Sandy and depressive symptoms (Kopala-Sibley, Kotov, Bromet, Carlson, Danzig, Black, & Klein, 2016). In particular, researchers found that stress symptoms predicted symptoms of depression, but only in individuals with high negative emotionality or low positive emotionality, after controlling for lifetime depressive disorders. In another study, neuroticism was found to fully mediate the link between childhood sexual abuse and later psychopathology, as more severe sexual victimization was associated with higher levels of neuroticism, which was in turn associated with greater levels of psychopathology (Gallardo-Pujol & Pereda, 2013). Similarly, neuroticism was found to mediate the link between childhood trauma and severity of alcohol-dependence (Schwandt, Heilig, Hommer, George, & Ramchandani, 2013) and was identified as a vulnerability factor towards long-term posttraumatic stress and general distress symptoms after exposure to a natural disaster (Sveen, Arnberg, Arinell, & Johannesson, 2016). These studies further attest to the importance of understanding personality characteristics and their associated vulnerability toward psychopathology, both in general conditions as well as under stressful or adverse situations.

Personality Facets and Mental Health

As mentioned previously, research has long supported the association between broad personality traits and mental health difficulties (Kotov et al., 2010; Robinson et al., 2014).

Consistent with the examination of other outcome variables, researchers studying the association among personality and psychopathology have argued that personality facets provide a more refined and stronger prediction than broad traits (Goldstein et al., 2017; Rector, Bagby, Huta, & Ayearst, 2012; Spinhoven, Elzinga, van Hemert, de Rooji, & Pennix, 2014), thus providing a deeper and more nuanced understanding of the underpinnings of psychopathology (Chioqueta & Stiles, 2005), resulting in the ability to better tailor intervention ideas in clinical populations (Goldstein et al 2017).

Research attesting to the improved predictive ability of personality facets over broad domains has focused on numerous aspects of psychopathology, including internalizing disorders such as depression and anxiety (Goldstein et al., 2017; Spinhoven et al., 2014), externalizing disorders (Naragon-Gainey & Simms, 2017), and personality disorder diagnoses (Reynolds & Clark, 2001), such as depressive personality disorder (Huprich, 2003) and antisocial personality disorder symptoms (Le Corff & Toupin, 2010). Similar to studies examining other outcomes, researchers have emphasized the importance of facet-level examination in the relation to psychopathology, as underlying latent facets have shown substantially different relationships to psychopathology in both direction and strength (Stanton & Watson, 2015; Walton, Pantoja, & McDermut, 2017; Watson et al., 2015). For example, in one study, internalizing disorders (e.g., subsuming distress and fear disorders) were predicted by high aesthetics and low actions in the openness domain, and low trust and high tender-mindedness in the agreeableness domain, in addition to high anxiety and depression (neuroticism domain), low gregariousness (extraversion domain), and low self-discipline (conscientiousness domain) (Walton et al., 2017).

Studies specifically examining the general trait of extraversion have found similar results, as substantially different relationships in terms of magnitude and direction have been found

among underlying facets in both two-factor (Stanton & Watson, 2015) and four-factor (Watson et al., 2015) structures. While similar in terms of direction, a four-year longitudinal study found different associations among extraversion facets and psychopathology (Spinhoven et al., 2014). In particular, they found that while depression was most strongly related to the facet of low positive emotionality, social anxiety was moderately related to both low sociability and low positive emotionality facets (Spinhoven et al., 2014). As both depression and social anxiety had comparable correlations with the broad personality domain of extraversion in their study, their results support the importance of examining the underlying facets to gain a more specific and nuanced understanding of personality and psychopathology.

Closer examination of the broad domains of neuroticism and conscientiousness has also been found to be fruitful. While neuroticism was found to predict both depression and GAD onsets, neuroticism facets provided a more refined understanding of these relationships (Goldstein et al., 2017). Specifically, multivariate analyses identified depressivity as a unique predictor of first onsets of depression, whereas anxiousness uniquely predicted onsets of GAD and social phobia above and beyond that of neuroticism. When focusing on conscientiousness, research has shown that its underlying facets differentially contribute to internalizing and externalizing disorders (Naragon-Gainey & Simms, 2017). In particular, whereas facets pertaining to low self-efficacy related to internalizing disorders, facets regarding risk-taking and disregarding of rules related to externalizing disorders. Generally, these studies lend further support to prior studies attesting to the necessity of examining personality predictors at a facet-level (Chioqueta & Stiles, 2005; Spinhoven et al., 2014), as they provide a deeper understanding of complexities involved in their associations with psychopathology.

Personality facets have also been found to play a role in the stability, or change, in psychopathology symptomology over time. For example, Naragon-Gainey and Watson (2014) created a consensual factor model addressing the personality facets underlying the FFM, to better account for the use of differing measures in the extant literature. Using their model, they found that high anger (neuroticism), low positive emotionality (extraversion), low conventionality (conscientiousness), and low culture (openness) provided significant additional incremental validity in predicting depression at time 2, while accounting for baseline and trait depression. Again, understanding the particular influences of personality facets not only provides a clearer depiction of the contributors underlying psychopathology, but can aid in the tailoring of clinical interventions in clinical populations (Goldstein et al 2017).

Personality, Resiliency, and Achievement

Personality Traits and Resiliency

In the quest to better understand predictors of positive mental health outcomes, resiliency, and general well-being, personality traits have emerged as important predictors. Generally, personality has been identified in the literature as contributing to resiliency (Lee et al., 2013; Sarkar & Fletcher, 2014), as well as other positive outcomes, such as psychological and subjective well-being (Anglim & Grant, 2016; Grant, Langan-Fox, & Anglim, 2009; Ozer & Benet-Martínez, 2006; Reshma & Manjula, 2016), interpersonal interactions and relationships (Anglim & Grant, 2016), physical health and longevity (Ozer & Benet-Martínez, 2006), and use of particular coping strategies (Connor-Smith & Flachsbart, 2007).

Subjective well-being and psychological well-being have both been associated with personality traits, particularly extraversion, (low) neuroticism, and conscientiousness, and a

stronger relationship has been identified between personality and psychological well-being (Anglim & Grant, 2016; Grant et al., 2009). Similarly, low neuroticism, high extraversion, and high conscientiousness provided the strongest correlations with measures of subjective well-being in another study of students and community members (Quevedo & Abella, 2011) and with psychological well-being in college students (Arshad & Rafique, 2016). All five broad personality traits were found to relate to subjective well-being in a meta-analysis, with (low) neuroticism, extraversion, agreeableness, and conscientiousness found to be significantly related to all measured types of subjective well-being studied (Steel, Schmidt, & Shultz, 2008). Other studies have shown associations among personality traits and only particular aspects of subjective well-being, such as openness and self-acceptance, though still highlighting the broad relation between (low) neuroticism, conscientiousness, and subjective well-being (Reshma & Manjula, 2016).

Examination of the association between personality traits and the underlying domains of well-being has aided in providing a deeper understanding of these relationships and their contribution to positive mental health outcomes. Specifically, (low) neuroticism was found to be the strongest predictor of all four indicators of subjective well-being in one study (i.e., happiness, life satisfaction, positive affect, negative affect) (Quevedo & Abella, 2011). When combined with extraversion, 24% of the variance in happiness and 13% of the variance in negative affect were explained. Moreover, neuroticism and conscientiousness explained 16% of life satisfaction, whereas 22% of the variance in positive affect was explained by neuroticism, extraversion, conscientiousness, and openness. In another study, extraversion and neuroticism emerged as the strongest predictors of life satisfaction, when focusing on higher-order personality traits (Schimmack, Oishi, Furr, & Funder, 2004). Positive relations with others was predicted by the

traits of extraversion, agreeableness, and (low) neuroticism, whereas conscientiousness was strongly associated with life purpose (Anglim & Grant, 2016). Further, in this study, significant residual cross-correlations emerged between openness and personal growth, as well as agreeableness and positive relations, though conscientiousness was negatively related to the latter domain of well-being. In general, though personality traits have broadly been associated with measures of well-being, examination of the particular domains underlying subjective and/or psychological well-being has awarded a better understanding of these relationships (Anglim & Grant, 2016; Reshma & Manjula, 2016).

Notably, research has also pointed to the interaction of personality traits when examining positive outcomes or abilities, such as cultural intelligence. For example, three of the four types of cultural intelligence measured (i.e., metacognitive, cognitive, and behavioral), which is defined as an individual's ability to interact effectively with people of other backgrounds, were found to be related to the personality trait of openness, but only when agreeableness was high (Li, Mobley, & Kelly, 2016). When agreeableness was low, this relationship no longer held.

Resiliency research has identified personality disposition as an important factor in the healing and coping processes after exposure to adverse conditions. In addition to influencing the specific forms and effectiveness of coping strategies utilized when faced with stress (Connor-Smith & Flachsbart, 2007), personality traits have been shown to moderate the relationship between traumatic situations and later psychopathology (Caska & Renshaw, 2013; Gallardo-Pujol & Pereda, 2013). For example, high levels of extraversion were shown to significantly weaken the association among severity of both forms of war experiences (i.e., combat exposure and aftermath of battle events) and PTSD in OEF/OIF service members. Extraversion, agreeableness, and openness were also found to moderate the relationship between battle

aftermath events and PTSD, serving as buffering/protective factors, whereas high levels of neuroticism served as a vulnerability factor/moderator (Caska & Renshaw, 2013). Conscientiousness was identified as a moderator in another study assessing the relationship between childhood sexual victimization and later psychopathology (Gallardo-Pujol & Pereda, 2013). In particular, when high levels of victimization had occurred, high conscientiousness was associated with lower levels of psychopathology; however, when there were low levels of sexual victimization, high conscientiousness related to slightly greater psychopathology than was seen with low conscientiousness. These findings highlight the nuanced effect of personality traits and adverse conditions, again supporting the importance of understanding personality influences at a deeper level.

Other studies examining resiliency have identified positive emotionality (e.g., similar to extraversion) as the personality trait most predictive of resiliency (Robinson et al., 2014). In this study, the overarching personality trait of positive emotionality included well-being, social potency, achievement, and social closeness, attesting to the importance of these various factors in healing and well-being after stress. Apart from five-factor personality traits, the personality trait of hardiness has also been identified as contributing to resilience in a variety of situations (Beasley, Thompson, & Davidson, 2003; Escolas, Pitts, Safer, & Bartone, 2013) and has been shown to moderate the relationship between various stressors and negative mental health and behavioral outcomes, such as stress and depression (Pengilly & Dowd, 2000), academic stress and health complaints (Hystad, Eid, Laberg, Johnson, & Bartone, 2009), and deployment-related stressors and psychological distress (Orme & Kehoe, 2014). In sum, though some personality traits have emerged as predictors of negative outcomes following stress (Klein et al., 2011; Kotov et al., 2010; Robinson et al., 2014; Watson & Naragon-Gainey, 2014; Uliaszek et al.,

2015), research has also pointed to the contribution of personality traits to resiliency after adverse conditions (Caska & Renshaw, 2013; Gallardo-Pujol & Pereda, 2013). Gaining a greater understanding of the personality traits that may aid in positive outcomes following stressful and adverse situations is a central focus to this study and may be used to foster approaches that encourage resilience in the future.

Personality Facets and Resiliency

As seen with other outcomes such as behavior and psychopathology (Spinhoven et al., 2014; Stanton & Watson, 2015), examination of personality at a facet level provides increased predictive ability when examining its relationship to well-being and resiliency. For example, increased predictive ability was found in association with well-being (Anglim & Grant, 2016; Steel et al., 2008; Quevedo & Abella, 2011) and life satisfaction (Schimmack et al., 2004) when examining personality at the facet-level, though there is a dearth of facet-level research in this area. In regard to well-being, the domains of well-being that showed the greatest increase in prediction by facets over the broad five-factor traits were autonomy and self-acceptance (Anglim & Grant, 2016).

In a sample of university students and individuals in communities in Spain, Quevedo & Abella (2011) examined the predictive ability of the Five-Factor Model personality facets, in addition to other personality traits (i.e., optimism, self-esteem, social support) in predicting four indicators of subjective well-being (i.e., happiness, life satisfaction, positive affect, negative affect). Analyses examining the predictive ability of the Big Five higher-order personality traits were also conducted, with results noting that seven of the 30 Big Five personality facets, in addition to three non-Big Five traits, accounted for more variance in the four indicators of

subjective well-being than the higher-order personality traits. When examining the personality facets and additional traits in particular, results indicated that 43% of the variance in happiness was accounted for by optimism, depression, positive emotions, and perceived social support. A total of 29% of the variance in life satisfaction was accounted for by optimism, depression, perceived social support, and achievement striving. The facets of vulnerability, warmth, and impulsiveness accounted for 24% of the variance in positive affect, whereas self-esteem, activity, and vulnerability accounted for 24% of the variance in negative affect (Quevedo & Abella, 2011).

Additional studies examining personality traits and facets as predictors of life satisfaction found that the most consistent and strongest predictors were the facets of (low) depression (neuroticism trait) and positive emotions/cheerfulness (extraversion trait) (Schimmack et al., 2004). Importantly, researchers highlighted that these facets often accounted for more variance in life satisfaction than the higher-order traits of neuroticism and extraversion. Cheerfulness (extraversion domain) also emerged as the strongest semi-partial correlation with life satisfaction in another study assessing the incremental prediction of personality facets (Anglim & Grant, 2016). In addition, the facet of achievement-striving was associated with incremental prediction of purpose in life. Generally, the facets of depression and self-consciousness emerged as commonly having negative relations with well-being (Anglim & Grant, 2016).

Much like how broader personality traits have been shown to relate differentially to domains underlying well-being (Anglim & Grant, 2016; Reshma & Manjula, 2016), examination of the facets underlying broad personality traits have awarded a more sophisticated and nuanced understanding of the interplay between personality and positive mental health outcomes, such as resiliency and well-being (Siegler & Brummett, 2000). For example, differential relationships in

terms of magnitude and direction were noted when examining personality facets and domains of well-being in midlife. Specifically, within the trait of openness, low fantasy, high actions, and high ideas contributed to the well-being domain of self-acceptance, whereas the personality facets of high trust, high altruism, and low modesty underlying the trait of agreeableness were also found to relate to self-acceptance (Siegler & Brummett, 2000). These results further support prior research indicating the need to examine personality relations at a facet-level.

Personality Traits and Achievement

Within the extant literature, personality traits have been associated with achievement in both work (Barrick, Mount, & Judge, 2001) and academic settings (Malykh, 2017; Poropat, 2009; Poropat, 2014), when rated by oneself or when rated by someone else (academic; Poropat, 2014). In regard to work performance, a meta-analysis of prior meta-analyses identified conscientiousness as the strongest and most valid predictor of performance across occupations and noted that neuroticism (or the reverse, emotional stability) was also found to be a valid, though smaller, predictor of work performance across occupations (Barrick et al., 2001). The remaining personality traits of extraversion, agreeableness, and openness were found to predict some aspects of job performance in some occupations (Barrick et al., 2001). For example, extraversion and (low) neuroticism uniquely predicted job satisfaction in a group of adults with various occupations (Tokar & Subich, 1997). Conscientiousness has also emerged as a strong predictor of both intrinsic (i.e., job satisfaction) and extrinsic (i.e., income and occupational status) career success, whereas neuroticism negatively predicted extrinsic success (Judge, Higgins, Thoresen, & Barrick, 1999). Notably, these broad personality traits have also been

shown to predict job performance over and above job-related technical skill (Hörmann & Maschke, 1996).

In the academic domain, personality has been identified as having an influence on academic performance that is independent of (Bratko, Chamorro-Premuzic, & Saks, 2006) and stronger than that of intelligence (Poropat, 2009; Noftle & Robins, 2007). Similar to work performance literature, studies examining the association between personality traits and academic achievement have highlighted conscientiousness as the strongest and most robust predictor of academic performance (Malykh, 2017; Poropat, 2009), including GPA in post-secondary (McAbee & Oswald, 2013) and tertiary (Richardson, Abraham, & Bond, 2012; Vedel, 2014) academic settings. In fact, conscientiousness was found to explain five times the amount of variance in GPA as intelligence in a study of higher education students in the Netherlands (Kappe & van der Flier, 2012) and was found to add a small amount of predictive ability over secondary GPA when predicting tertiary GPA in a meta-analysis (Poropat, 2009). Importantly, when controlling for secondary academic performance in this meta-analysis, conscientiousness provided a comparable amount of predictive ability to tertiary academic performance as did intelligence. The strength of conscientiousness was further supported by another meta-analysis (Vedel, 2014), which found that conscientiousness was the strongest and most robust predictor, whereas agreeableness and openness were weak, but significant, positive predictors of achievement (Vedel, 2014). Academic major (psychology vs. other) moderated these relationships, particularly for conscientiousness.

Poropat (2014) reported significantly stronger associations among all of the Five-Factor Model personality traits and academic achievement when rated by someone else (e.g., teacher) than has been found in studies assessing self-reported personality. Further, this study again

attested to the robustness of conscientiousness as a positive predictor of achievement, as it was found to correlate more strongly with academic performance than did intelligence. Those results further support the importance of examining personality traits as predictors of performance and achievement and add to the literature regarding the utility of other-raters of personality, as other-ratings have been shown to add predictive validity to work performance and academic achievement that is substantially greater than and incremental to self-ratings (Connelly & Ones, 2010).

Of note, research has also pointed to the weakened predictive ability of intelligence when examining achievement at higher levels of education (Chamorro-Premuzic & Furnham, 2005; O'Connor & Paunonen, 2007), which may be due to ceiling effects and a restriction in range in intelligence scores. Given the lower predictive ability of intelligence as an individual reaches higher levels of education, the argument can be made that in high-achieving adults who have completed high levels of education, personality is likely to serve as an especially important predictor of achievement and success. That phenomenon is especially salient to the current study, as participants were high-achieving individuals who completed high levels of education. Thus, given the strength of personality as a predictor of achievement, and the decreasing strength of intelligence as a predictor, these studies support the importance of using personality to identify individual differences in performance. It should be noted, though, that while some research has found an increase in the predictive ability of personality (e.g., with medical students; Lievens, Ones, & Dilchert, 2009), other research has found a decrease in correlations among personality and academic performance as academic level increased, with the exception of conscientiousness (Poropat, 2009).

Personality Facets and Achievement

Personality facets have been identified as important predictors of performance in both work (Ziegler, Bensch, Maaß, Schult, Vogel, & Bühner, 2014) and academic settings (O'Connor & Paunonen, 2007). As with other outcome variables, such as behavior (Paunonen, 2003) and psychopathology (Goldstein et al., 2017; Spinhoven et al., 2014), research has supported the use of facets to aid in better specificity, stronger prediction, and a more refined understanding of personality and broad achievement (Tett, Steele, & Beauregard, 2003). Specifically, studies have shown that the relationships between broad personality traits and measures of job performance (Tett et al., 2003), achievement goal orientation (Bipp, Steinmayr, & Spinath, 2008), and academic performance (O'Connor & Paunonen, 2007) are better explained by the strong relationships among underlying personality facets and the particular achievement outcome. Importantly, the examination of personality and achievement at a facet-level protects against the loss of predictive ability that can be caused when underlying relationships are muted, cancelled out, or lost due to aggregation (Tett et al., 2003), as seen with other outcomes (Stanton & Watson, 2015; Walton et al., 2017).

Personality facets, such as those underlying conscientiousness, extraversion, and openness, have been associated with measures of job training (Ziegler et al., 2014) and work performance (Ellershaw, Fullarton, Rodwell, & McWilliams, 2016). In regard to job training research, four underlying facets were identified as contributing to job training performance across occupational groups, whereas other facets showed contributions only to particular occupations (Ziegler et al., 2014), Notably, these facets showed significant relationships that differed in direction within the same general personality traits: high dutifulness and low deliberation within the conscientiousness domain, and high openness to ideas and low openness

to fantasy within the openness domain. Again, these relationships further support the notion that examination at solely a broad personality level results in a loss of predictive ability due to these differing relationships. Importantly, personality facets were shown to predict job performance above and beyond that of general personality domains (Ziegler et al., 2014).

The utility of examining personality facets in predicting academic achievement has also been supported by recent research (O'Connor & Paunonen, 2007; Paunonen & Ashton, 2013). In their meta-analytic review, O'Connor and Paunonen (2007) found support for the increased predictive ability of lower-level personality facets than the broad five-factor personality domains when examining post-secondary academic achievement. Moreover, examination of the relationships among personality facets and achievement provide a deeper understanding of these relationships than can be gleaned when looking solely at the broad domain level (Paunonen & Ashton, 2001b). For example, the literature has consistently identified conscientiousness as the strongest and most robust predictor of both academic (Poropat, 2009; Richardson et al., 2012; Vedel, 2014) and work achievement (Barrick et al., 2001), though examination at a facet-level is needed to gain a deeper understanding of its influence. Studies have shown the facets underlying conscientiousness do not correlate the same with measures of performance; achievement-striving has identified most strongly with university GPA in one study (Gray & Watson, 2002) and both achievement-striving and self-discipline have emerged as the most consistent and strongest facet predictors of academic achievement (O'Connor & Paunonen, 2007).

Similarly, the predictive ability of academic achievement is lost when examined solely at the level of the broad personality domain (Gatzka & Hell, 2018). Particularly, studies have identified significantly predictive facets underlying personality domains that have shown weaker or insignificant relations with achievement (Paunonen & Ashton, 2001b). For example, openness

is commonly associated with academic performance, though recent meta-analyses (e.g., Gatzka & Hell, 2018; O'Connor & Paunonen, 2007) have found smaller correlations than expected. The weaker predictive ability of the broader openness domain can be attributed to differential relationships among the underlying personality factors and achievement. Namely, the facets of (openness to) ideas and values emerged as positive predictors of achievement, whereas (openness to) actions and fantasy correlated negatively with achievement (Gatzka & Hell, 2018). The importance of examining personality at a facet-level was also supported by a study focusing on another form of academic achievement: matching to a pre-doctoral internship program after interviews (Callahan, Hogan, Klonoff, & Collins, 2014). In their study, the personality facets of artistic interests (openness), self-efficacy (conscientiousness), and friendliness (extraversion) provided small but statistically significant correlations with successfully matching, whereas the facet of assertiveness (extraversion) approached significance in this study. Importantly, none of the broad five personality traits were found to correlate with successful match outcomes (Callahan et al., 2014), further supporting the importance of examining personality predictors and relationships at a facet-level.

The Present Study

Prior research has highlighted the tremendous utility of examining personality at a facet-level to better understand its relationship with psychopathology (Goldstein et al., 2017; Naragon-Gainey & Simms, 2017; Spinhoven et al., 2014; Stanton & Watson, 2015), as well as with positive outcomes, such as well-being (e.g., Anglim & Grant, 2016; Steel et al., 2008; Quevedo & Abella, 2011) and academic and job performance (e.g., O'Connor & Paunonen, 2007; Tett et al., 2003). Moreover, personality has been shown to play a role in the management of adverse,

traumatic, and stressful situations (e.g., Caska & Renshaw, 2013; Gallardo-Pujol & Pereda, 2013). Given the foundation provided by prior research, the current study sought to augment the extant literature by examining the predictive ability of personality facets when exposed to transient stress during chronic stress situations. Specifically, the current study utilized a sample of high-achieving individuals with constant exposure to chronic stress; participants were carefully selected to reflect the characteristics inherent in astronauts. This study utilized broad personality traits and their facets to prospectively predict risk and resiliency to naturally occurring transient stress in individuals who experience chronic stress. Study aims and hypotheses were as follows:

1. Personality facets will provide stronger estimates in the prediction of mental health and behavioral functioning outcomes than broad traits in the presence of stress.
2. Specific facets underlying the broad traits of neuroticism, extraversion, and conscientiousness will provide the largest estimates in predicting mental health and behavioral functioning outcomes (see Table A.1 for prior research informing this hypothesis). Namely,
    a. Neuroticism facets of anxiety, depression, and anger proneness will contribute to risk.
    b. Extraversion facets of positive temperament and sociability, in addition to conscientiousness facets of self-discipline, achievement-striving, and dutifulness, will contribute to resilience.

CHAPTER 2

METHODS

Participants

This study used archival data associated with participants who were postgraduate trainees or medical residents in Science, Technology, Engineering, and Mathematics (STEM) fields. This specific sample was chosen given their high achievement demands, their continued exposure to high chronic stress and demands, and high educational attainment, to best reflect the high-achieving characteristics inherent in the selection of astronauts. Participants were recruited predominantly from Stony Brook University and Brookhaven National lab for participation, though some participants were recruited from surrounding universities in or around New York (e.g., New York University, Columbia University, etc.) and one participant was from John Hopkins University. In order for individuals to be eligible to participate, they must also have been (1) between 26 and 46 years of age, (2) read English, (3) be considered a high-achieving individual (as indicated by being a medical resident, graduate student, or postgraduate trainee in STEM fields), and (4) must not have had any prior mental health treatment. Individuals unable to meet these requirements were excluded.

Procedures

Participants were recruited through several methods from graduate and postgraduate training programs. These methods included the posting of flyers in high-traffic areas, requesting staff, faculty, and department heads to distribute information related to the study, emailing graduate and postgraduate students via information gained through department webpages, and providing study information through listservs specific to graduate students and postdoctoral

researchers. Detailed study information was provided to participants prior to the commencement of the surveys/evaluations, and participants were asked to provide their informed consent. Assessments for the study were administered to participants at six different time periods during the study: in-person during the initial baseline data collection and then administered online each month for the next five months. However, five participants chose to complete all study activities via the internet and therefore did not complete laboratory-based assessments (i.e., cognitive ability testing). The initial baseline data collection lasted approximately 2 hours, whereas the follow-up administrations took approximately 20 minutes to complete. Participants were provided a monetary incentive for completion of each portion of the study: $25 for the baseline data collection, $10 for follow-ups 1-4, and $25 for the final follow-up.

All study materials were kept strictly confidential. Participants were assigned a study identification number; a separate document linking participant information and number was kept in a secured location but not combined with the data set used in analyses. Data was transferred from online databases (e.g., Qualtrics website) to individual data sheets for each time period. Data sheets were integrated following the completion of the study. The electronic database will be retained for a minimum of three years after study conclusion.

Measures

Demographics

Participants were provided with a self-report demographic questionnaire during the baseline measure, which asked the participant to self-identify their age, gender, and race/ethnicity. In addition, respondents provided information related to their school (if applicable), field of study, and level of education.

Faceted Inventory of the Five-Factor Model (FI-FFM)

The FI-FFM is a 247-item questionnaire assessing the higher-order personality domains related to the Five-Factor Model, as well as lower-order personality facets within each personality domain (Naragon-Gainey et al., 2009; Simms, Yufik, Thomas, & Simms, 2008; Watson, Nus, & Wu, 2017). Derived through factor analysis, the FI-FFM includes facets assessing Neuroticism (5 facets; Anxiety, Depression, Anger Proneness, Somatic Complaints, Envy), Extraversion (5 facets; Positive Temperament, Sociability, Ascendance, Venturesomeness, Frankness), Agreeableness (4 facets; Empathy, Trust vs. Cynicism, Straightforwardness vs. Manipulativeness, Modesty), Conscientiousness (5 facets; Self-Discipline, Dutifulness, Deliberation vs. Impulsivity, Achievement Striving, Order) and Openness (3 facets; Intellectance, Novel Experience Seeking, Nontraditionalism), as well as additional facets not related to a particular personality domain (Dependency, Emotional Resonance, Unusual Experiences, Eccentric Beliefs) (Watson et al., 2015). Response options are provided on a 5-point Likert format (1 = Disagree Strongly; 5 = Agree Strongly); scores are summed to provide overall facet and domain scores. The FI-FFM has demonstrated good convergent and discriminant validity with other measures of personality (Simms et al., 2008; Watson et al., 2017), as well as good internal consistency (α range .82 to .94, Simms et al 2008).

Although the full measure contains 207 items (with 40 additional questions for the unassociated facets), only 190 of these questions were included due to time constraints. Specifically, approximately half of the items for facets belonging to agreeableness and openness facets were provided, as well as for three of the four additional facets (i.e., agreeableness facets: 5/10 items for empathy, 5/11 items for trust, 5/11 items for straightforwardness, 5/10 items for modesty; openness facets: 5/11 items for intellectance, 5/11 items for novel experiences, 5/12

items for nontraditionalism; additional facets: 5/10 items for unusual experiences, 5/10 items for emotional resonance, and 5/10 items for eccentric beliefs). In addition, one item from the frankness scale was unintentionally excluded from the assessment battery. In the current study, internal consistency for higher-order personality traits was adequate to strong (α = .72 - .94). Neuroticism facets demonstrated good internal consistency (α = .85 - .87), extraversion facets displayed adequate to good internal consistency (α = .78 - .85), conscientiousness facets exhibited adequate to good internal consistency (α = .77 - .87), and the facets not underlying higher-order traits demonstrated adequate internal consistency (α = .70 - .74). Low internal consistency values were found for facets underlying agreeableness (α = .61 - .66) and openness (α = .57 - .59) traits, which may be attributable to the administration of shortened subscales. Only one of these scales was able to be improved to acceptable levels (i.e., agreeableness facet of trust vs. cynicism; α = .72) by dropping one item ("I tend to give people the benefit of the doubt"). The remaining facets were unable to be strengthened to acceptable levels; however, these facets were maintained in the current analyses for exploratory purposes.

Perceived Stress Scale (PSS-10)

The 10-item PSS (Cohen & Williamson, 1988) is an abbreviated version of the original 14-item measure (Cohen, Kamarck, & Mermelstein, 1983) assessing the perceived stressfulness of life experiences over the past month. Questions specifically examine perceptions that life is unpredictable, uncontrollable, and overloading. Factor analyses indicate a two-factor structure (e.g., perceived helplessness and perceived self-efficacy, Roberti, Harrington, & Storch, 2006; Taylor, 2015), though analyses have also supported the use of a singular total score (Reis, Hino, & Rodriguez-Añez, 2010). Responses are provided on a 5-point Likert format (0 = Never; 4 =

Very Often) and summed; higher total scores are indicative of greater perceived stress (total score range = 0-40). Prior research has interpreted PSS-10 scores of 0-10 as being indicative of low levels of stress, scores of 11-15 as indicating mild levels of stress, 15-20 as identifying moderate stress, and scores above 20 as denoting severe levels of stress (Kizhakkeveettil, Vosko, Brash, & Phillips, 2017). The 10-item scale has demonstrated adequate internal consistency (alpha = .78, Cohen & Williamson, 1988; .89, Roberti et al., 2006) and construct validity (Roberti et al., 2006), and has been adapted into over twenty languages, including Spanish (Perera et al., 2017), Bengali (Mozumder, 2017), German (Klein et al., 2016), and Korean (Lee, Chung, Suh, & Jung, 2015). In the current study, internal consistency for the PSS-10 total scale was strong across all time points (baseline $\alpha = .84$; follow-up 1 $\alpha = .89$; follow-up 2 $\alpha = .88$; follow-up 3 $\alpha = .90$; follow-up 4 $\alpha = .86$; follow-up 5 $\alpha = .87$).

Expanded Version of the Inventory of Depression and Anxiety Symptoms (IDAS-II)

The IDAS-II is a 99-item measure assessing a broad range of anxiety, depression, and bipolar symptoms (Watson et al., 2012) and is a revision of the original measure that contained 11 non-overlapping scales derived through factor analysis (Watson et al., 2007). The revised IDAS-II has a total of 18 scales, six of which were used in the current study (dysphoria, lassitude, insomnia, ill temper, panic, and checking). Questions assess current and recent symptomology that has occurred over the past two weeks; responses are provided on 5-point Likert format (1 = Not at All, 5 = Extremely). The IDAS-II has demonstrated criterion and incremental validity, discriminant validity, and strong convergent validity (Watson et al., 2012). In addition, the six IDAS-II scales used in the current study have previously demonstrated strong internal consistency in samples of patients, adults, and students ($\alpha = .81$ - .90; Watson et al.,

2012). Internal consistency for IDAS-II outcomes was adequate to strong for all six outcome scales across time points in the current study (see Table 1).

Patient-Reported Outcomes Measurement Information System (PROMIS) Measures

Participant perception of functioning was assessed using short-form versions of PROMIS item banks developed by the U.S. National Institutes of Health (NIH) to measure patient-reported outcomes (see Cella et al., 2007; Cella et al., 2010). Item banks created through item-response theory (Riley, Pilkonis, & Cella, 2011) are used to create PROMIS measures of varying lengths, with a focus on efficiency, flexibility of items, and precision in measurement (Cella et al., 2010). Items are assessed using a 5-point Likert format measuring intensity (e.g., 1 = Not at All; 5 = Very Much) and quality (e.g., 1= Very Poor; 5 = Very Good) (Cella et al., 2010). Studies have supported good reliability and strong construct validity for the measures (Cella et al., 2010).

PROMIS Applied Cognition

Perceptions of cognitive functioning was assessed through the PROMIS v1.0 Applied Cognition Abilities Short Form 6a (also referred to as the PROMIS v2.0 Cognition Function Abilities Short Form 6a), developed by the U.S. National Institutes of Health (NIH). This scale contains six questions focused on participant perceptions related to aspects of their cognitive functioning and whether they believe their cognitive functioning abilities have remained the same or changed over the past seven days. Items are provided on a 5-point Likert format (1 = Not at All; 5 = Very Much), with greater scores indicating better cognitive functioning and less changes in cognitive functioning. Short form versions include measures consisting of four and

six items (see www.healthmeasures.net/explore-measurement-systems/promis and www.healthmeasures.net/index.php?Itemid=992). In the current study, internal consistency was strong across all time points (baseline α = .93, follow-up 1 α = .92, follow-up 2 α = .94, follow-up 3 α = .94, follow-up 4 α = .96, follow-up 5 α = .95).

PROMIS Ability to Participate in Social Roles and Activities

The PROMIS v2.0 Ability to Participate in Social Roles and Activities Short Form 4a is a 4-item self-report questionnaire developed to assess for participants' perceived ability to perform their typical social activities and roles. Items are assessed on a 5-point Likert format (1 = Always; 5 = Never), with higher scores indicating greater social functioning. In the current study, scores were reverse coded so that greater scores reflected greater impairment in social functioning. Short form versions include measures consisting of four, six, and eight items (see www.healthmeasures.net/explore-measurement-systems/promis and www.healthmeasures.net/index.php?Itemid=992). This scale demonstrated good internal consistency throughout all data collection points in the current study (baseline α = .85, follow-up 1 α = .86, follow-up 2 α = .84, follow-up 3 α = .87, follow-up 4 α = .87, follow-up 5 α = .90).

PROMIS Sleep Disturbance

Sleep functioning was assessed using the PROMIS v1.0 Sleep Disturbance Short Form 6a, a self-report measure that contains six questions pertaining to perceptions of sleep quality. These items are drawn from an item bank of 27 items assessing difficulty with sleep (Cella et al., 2010) and are assessed on a 5-point Likert scale ("Very Poor" to "Very Good;" and "Not at All" to "Very Much"). Several items are reverse coded prior to summing to produce a total score;

higher scores are indicative of greater reported sleep quality and functioning. Short form versions include measures consisting of four, six, and eight items (see www.healthmeasures.net/explore-measurement-systems/promis and www.healthmeasures.net/index.php?Itemid=992). Internal consistency for the PROMIS Sleep Disturbance Short Form 6a in the current study was good across time points (baseline $\alpha = .87$, follow-up 1 $\alpha = .88$, follow-up 2 $\alpha = .89$, follow-up 3 $\alpha = .89$, follow-up 4 $\alpha = .89$, follow-up 5 $\alpha = .89$).

PROMIS Fatigue

The PROMIS v1.0 Fatigue Scale Short Form 4a is a self-report form containing four questions assessing participant perception of fatigue, drawn from a bank of 95 fatigue items (Cella et al., 2010). Questions are provided on a 5-point Likert format (1 = Not at All; 5 = Very Much) and assess perceptions of fatigue over the past seven days. Higher scores are indicative of greater reported fatigue symptoms. Short form versions include measures consisting of four, six, seven, eight, and thirteen items (see www.healthmeasures.net/explore-measurement-systems/promis and www.healthmeasures.net/index.php?Itemid=992). In the current study, the PROMIS Fatigue Scale Short Form 4a demonstrated strong internal consistency during baseline and all follow-ups (baseline $\alpha = .89$, follow-up 1 $\alpha = .90$, follow-up 2 $\alpha = .92$, follow-up 3 $\alpha = .93$, follow-up 4 $\alpha = .92$, follow-up 5 $\alpha = .92$).

Analyses

Hierarchical linear modeling (HLM) analyses (Osborne, 2000), also known as multilevel models, were estimated using the PROC MIXED procedure in SAS® version 9.4. HLM accounts

for the nested structure of data resulting from repeated measures. Total scores for all variable scales were standardized prior to conducting analyses.

> Hypothesis 1) Personality facets will provide stronger estimates in the prediction of mental health and behavioral functioning outcomes than broad traits in the presence of stress.

To test hypotheses, a series of HLM models were run on behavioral and mental health outcomes separately. For each model, the behavioral or mental health outcome for each month was entered as a time-varying outcome and was predicted by an intercept and time-varying stress level (PSS) (i.e., Level 1 model). Both the intercept and the slope for stress had fixed and random effects (i.e., Level 2 model). Each personality facet and trait was entered into the Level 2 equations to predict the intercept and slope, and to test for cross-level (personality x stress) interactions. Specific form of these equations were:

$$Y_{ij} = \beta_{0j} + \beta_{1j}(PSS) + \varepsilon_{ij} \quad \text{[Level 1]}$$

$$\beta_{0j} = \gamma_{00} + \gamma_{01}(personality) + \mu_{0j} \quad \text{[Level 2]}$$

$$\beta_{1j} = \gamma_{10} + \gamma_{11}(personality) + \mu_{1j} \quad \text{[Level 2]}$$

In the combined model, mental health or behavioral functioning was a linear function of average perceived stress levels over time across the sample, baseline personality facet at the between person level, the cross-level interaction between stress and personality, and random effect terms at both levels. This combined equation was written as:

$$Y_{ij} = \gamma_{00} + \gamma_{01}(personality) + \gamma_{10}(PSS) + \gamma_{11}(PSS*personality) + \mu_{0j} + \mu_{1j}(PSS) + \varepsilon_{ij}$$

A significant fixed effect coefficient for personality would provide support for the predictive utility of personality in predicting mental health and/or behavioral functioning outcomes. Significant fixed effect coefficients for the stress x personality interactions would provide support for an interactive effect between stress and personality. Strength of the

coefficients for personality facets and personality traits were examined to assess the predictive utility of personality facets.

> Hypothesis 2) Specific facets underlying the broad traits of neuroticism, extraversion, and conscientiousness will provide the largest estimates in predicting mental health and behavioral functioning outcomes.

Results from the previously discussed HLM analyses provided information regarding the fixed effect coefficients of each personality facet and trait in predicting mental health and behavioral functioning outcomes. Strength of fixed effect coefficients was examined to identify the personality facets with the greatest predictive strength.

CHAPTER 3

RESULTS

Data Cleaning

Data cleaning included examination of response options and missing values. All survey questions provided a sixth option to allow participants to "skip" a question if desired. Responses indicating a wish to "skip" a particular question were recoded as missing values prior to calculation of total scores. Overall, missingness was not a major issue. Approximately 5% of all data collected was missing (i.e., .7% at baseline and 8.2% in follow-ups; the percentage of participants who did not complete an entire wave are as follows: follow-up 1 = 7%; follow-up 2 = 8.5%; follow-up 3 = 11.5%; follow-up 4 = 10%; follow-up 5 = .5%). Missing values were taken into account in the following ways. First, total scores were not calculated for a participant if more than 80% of items were missing. Second, missing scale scores as well as missing waves were addressed by using full information maximum likelihood (FIML) for primary analyses. HLM using FIML are considered a gold standard approach for handling this type of attrition (Enders, 2010).

Univariate outliers were examined based on two methods: standardized variables of 3 and larger, as well as through box plots. However, outliers deemed 'extreme' through both methods were maintained since no obvious cause could be detected and since they may indicate valid levels of clinical distress. Similarly, several of the measures were expected to be non-normal, as outliers can represent significant clinical distress. Data was maintained in its original form to fully capture the effects of participants demonstrating the highest and lowest effects of stress.

Descriptive Analyses

Participants included 200 students and professionals in the STEM fields; attrition consisted of one participant who did not return after completing the baseline measures, with all other participants completing at least one follow-up. The sample consisted of 51.5% males (*n* = 103) and 48.5% females (*n* = 97). Forty-eight percent of participants identified as Asian (*n* = 96), whereas 39% (*n* = 78) identified as Caucasian, 7.5% (*n* = 15) as Hispanic/Latino, 2% (*n* = 4) as multiracial, 2% (*n* = 4) as 'other', and 1.5% (*n* = 3) as Black/African American. At the time of the study, 70% (*n* = 140) of participants were graduate students, 21% (*n* = 42) postdoctoral fellows, 4.5% (*n* = 9) physician residents, and 4.5% (*n* = 9) identified themselves as 'other.' Commonly reported fields of study for participants included computer science (15%; *n* = 30), physics (8%; *n* = 16), biomedical engineering or research (4.5%; *n* = 9), chemistry (3%; *n* = 6), and mechanical engineering (3%; *n* = 6). The average age for participants was 29.12 (*SD* = 3.71).

Perceived Stress

Prevalence of high stress levels was assessed using cut-off values used in other research with the PSS-10 (Kizhakkeveettil et al., 2017). Across each data collection period, mean stress scores indicated moderate levels of perceived transient stress for the overall sample (baseline *M* = 15.53, *SD* = 6.44; follow-up 1 *M* = 15.60, *SD* = 7.50; follow-up 2 *M* = 15.30, *SD* = 7.70; follow-up 3 *M* = 15.02, *SD* = 7.73; follow-up 4 *M* = 15.75, *SD* = 7.58; follow-up 5 *M* = 15.48, *SD* = 7.59). In addition, a substantial number of participants endorsed severe levels of stress at different times during the study, with the highest levels reported during the final two follow-up waves (baseline = 19.5%, *n* = 39; follow-up 1 = 22.3%, *n* = 41; follow-up 2 = 22.7%; *n* = 41; follow-up 3 = 21.7%, *n* = 38; follow-up 4 = 27.8%; *n* = 50; follow-up 5 = 27.1%, *n* = 54;

percentages are based on the total number of responses during these waves). In general, these scores are consistent with research indicating high levels of stress in students and professionals in the STEM fields, who already face chronic stress and high achievement demands, such as medical students (Backović et al., 2012; Midtgaard et al., 2008), forensic doctors (van der Ploeg et al., 2003), and astronauts (Endler, 2004; Manzey & Lorenz, 1999), and draw to the importance of understanding how high levels of chronic and transient stress can affect these, and similar high-achieving, populations.

Personality

Personality trait and facet scores were examined for the overall sample. Means and standard deviations for the full sample are provided in Table 2.

Effects of Stress

HLM analyses included perceived stress scores entered as a within-subjects time-varying predictor into the model. Consistent with prior research (De Francisco et al., 2016; Newbury-Birch & Kamali, 2001; Schwab-Reese et al., 2017), results supported the association among high levels of stress and negative mental health and functioning outcomes. In particular, stress levels significantly predicted all mental health outcomes assessed through the IDAS-II ($\beta = .31$ to $.66$, $p < .001$) and all functioning outcomes assessed through PROMIS scales ($\beta = |.30|$ to $|.49|$, $p < .001$); see Table 3 for specific PSS-10 results).

Personality Facets as Predictors of Mental Health and Behavioral Functioning

HLM was conducted to determine the predictive utility of personality facets in predicting mental health and behavioral functioning outcomes in the presence of stress. Tables 4 and 5 present the effects of personality on outcomes. Tables 6 and 7 present results for the interaction of personality with stress (see Tables A.2 – A.13 for full model results). The following sections review each outcome separately.

Dysphoria

Dysphoria was predicted by facets underlying neuroticism, conscientiousness, and openness (see Table 4). Specifically, neuroticism facets of depression and somatic complaints (β = .16 to .19, $p < .001$) emerged as the strongest predictors of the dysphoria outcome, followed by the broad trait of neuroticism, the neuroticism facet of anxiety, the openness facet of nontraditionalism, and the broad trait of openness and its facet of intellectance (β = .08 to .15, $p < .001$ to .050). In terms of protective personality facets, self-discipline emerged as the strongest negative predictor of dysphoria (β = -.15, $p < .001$), followed by the broad trait of conscientiousness and its facet of order (β = -.08 to -.11, $p = .002$ to .022).

In the face of stress, HLM analyses investigating predictors of dysphoria identified facets underlying neuroticism, extraversion, agreeableness, conscientiousness, and facets not connected to broader traits, as significant predictors (see Table 6). When interacting with stress, the neuroticism facet of depression emerged as the strongest predictor (β = .17, $p < .001$), followed by the broad trait of neuroticism, neuroticism facets of anxiety, somatic complaints, anger proneness, and envy, as well as the unassociated facet of unusual experiences (β = .09 to .16, $p < .001$ to .010). The conscientiousness facet of self-discipline emerged as the strongest negative

predictor of dysphoria, when combined with stress symptoms (β = -.14, $p < .001$), with additional predictors including the broad trait of conscientiousness, conscientiousness facets of dutifulness and order, agreeableness facets of straightforwardness and trust vs. cynicism, and the extraversion facet of positive temperament (β = -.06 to -.10, $p < .001$ to .050).

Overall, depression emerged as the strongest facet predictor of dysphoria, both at baseline as well as in the face of stress. The facets of anxiety and somatic complaints also demonstrated importance, as these three emerged as the strongest facets that positively predicted dysphoria at baseline, as well as in response to stress. Additionally, self-discipline emerged as the strongest facet that negatively predicted dysphoria, both at baseline and in the face of stress. Notably, a larger number of protective facets emerged as significant predictors once combined with stress.

Ill Temper

HLM results examining predictors of ill temper found significant predictors within the neuroticism, agreeableness, and conscientiousness domains, as well as with additional facets not belonging to any of the five higher-order traits (see Table 4). Specifically, the neuroticism facet of anger proneness was the strongest predictor of ill temper (β = .20, $p < .001$), followed by the broad trait of neuroticism and its facets of envy, anxiety, somatic complaints, and depression, as well as the unassociated facets of emotional resonance and eccentric beliefs (β = .09 to .20, $p < .001$ to .010). The broad trait of agreeableness (β = -.10, $p = .006$) emerged as the strongest negative predictor of ill temper, followed by the conscientiousness facets of dutifulness and deliberation, the overall trait of conscientiousness, and agreeableness facets of straightforwardness and modesty (β = -.08 to -.10, $p = .004$ to .040).

Ill temper was significantly predicted by interactions of stress and facets underlying neuroticism, extraversion, agreeableness, and conscientiousness, as well as facets not associated with the broad five personality factors (see Table 6). When combined with stress, neuroticism emerged as the strongest positive predictor of ill temper ($\beta = .20$, $p < .001$), followed by the neuroticism facets of depression, envy, anger proneness, anxiety, and somatic complaints, and the unassociated facets of unusual experiences, eccentric beliefs, emotional resonance, and dependency ($\beta = .07$ to $.18$, $p < .001$ to $.050$). The conscientiousness facet of dutifulness ($\beta = -.15$, $p < .001$) was identified as the strongest negative predictor of ill temper when combined with stress, followed by the broad trait of conscientiousness, conscientiousness facets of self-discipline, order, and deliberation, agreeableness facet of trust vs. cynicism, the broad trait of agreeableness, agreeableness facets of straightforwardness and modesty, and the extraversion facet of positive temperament ($\beta = -.07$ to $-.14$, $p < .001$ to $.050$).

Overall, neuroticism facets of anger proneness, envy, anxiety, and depression were the strongest predictors of ill temper, though the rank-order of these facets differed at baseline and in the face of stress. Dutifulness emerged as the strongest protective facet at baseline, as well as in response to stress. Further, a greater number of protective facets emerged in the face of stress as compared to baseline.

Panic Symptoms

Panic symptoms were significantly predicted by personality facets underlying the neuroticism, conscientiousness, and agreeableness traits, as well as by additional facets not underlying any of the broader higher-order traits (see Table 4). The neuroticism facet of somatic complaints emerged as the strongest predictor of panic ($\beta = .20$, $p < .001$), with additional

predictors including the broad trait of neuroticism and its facets of depression, anxiety, and anger proneness, and the unassociated facets of unusual experiences and eccentric beliefs (β = .09 to .18, $p < .001$ to .050). The conscientiousness facet of dutifulness emerged as the strongest negative predictor of panic (β = -.12, $p = .003$), followed by the broad trait of agreeableness, the agreeableness facets of trust vs. cynicism, the broad trait of conscientiousness, and the agreeableness facet of straightforwardness vs. manipulativeness (β = -.08 to -.11, $p = .014$ to .049).

In the face of stress, HLM analyses identified significant interactions between stress and facets underlying neuroticism, agreeableness, conscientiousness, and additional facets in predicting panic symptoms (see Table 6). In particular, the facet of unusual experiences, which is not associated with an overarching personality trait, emerged as the strongest positive predictor of panic symptoms when interacting with stress (β = .15, $p < .001$), followed by the broad trait of neuroticism, neuroticism facets of depression, anger proneness, anxiety, envy, and somatic complaints, as well as the unassociated facet of dependency (β = .09 to .15, $p < .001$ to .050). The conscientiousness facet of dutifulness (β = -.11, $p = .004$) interacted with stress to provide the strongest negative prediction of panic symptoms, followed by the broad trait of conscientiousness, the agreeableness facet of straightforwardness and its overarching trait of agreeableness, the conscientiousness facet of order, the agreeableness facet of trust, and the conscientiousness facet of deliberation (β = -.08 to -.11, $p = .004$ to .036).

Overall, somatic complaints and unusual experiences emerged as the strongest predictors of panic at baseline and in response to stress, respectively. Depression was also a strong predictor, with and without the presence of stress. Dutifulness emerged as the strongest facet to

negatively predict panic, both at baseline and in the face of stress. Straightforwardness and trust were also important protective facets with and without the presence of stress.

Insomnia

HLM analyses identified facets underlying neuroticism, agreeableness, and openness as significant predictors of insomnia (see Table 4). The neuroticism facet of somatic complaints emerged as the strongest predictor of insomnia (β = .14, p = .002), with additional predictors including the broad trait of neuroticism and its facets of depression and anxiety, the personality facet of intellectance, and its higher-order personality trait of openness (β = .10 to .12, p = .015 to .045). The agreeableness facet of straightforwardness was the strongest negative predictor of insomnia symptoms (β = -.10, p = .041), followed by the facet of trust (β = -.09, p = .049).

When combined with stress, insomnia symptoms were positively predicted by additional facets not underlying any of the broader five-factor domains (see Table 6). Specifically, the facet of eccentric beliefs (β = .09, p = .031) emerged as the strongest positive predictor of insomnia symptoms, followed by the additional facet of unusual experiences (β = .08, p < .05). There were no significant negative interactions predicting insomnia symptoms.

Overall, the emergence of facets that positively predicted insomnia differed based on the presence of stress; no personality facets were significant predictors both at baseline and in response to stress. Somatic complaints and eccentric beliefs were the strongest facet predictors at baseline and in the face of stress, respectively. Although straightforwardness and trust were important negative predictors of insomnia at baseline, neither were significant in response to stress.

Lassitude

Lassitude was significantly predicted by facets underlying each of the broad five-factor domains (see Table 4). The neuroticism facet of somatic complaints again emerged as the strongest predictor ($\beta = .25$, $p < .001$), followed by neuroticism facets of depression, the broad trait of neuroticism, its facet of anxiety, the openness facet of nontraditionalism, and its broad trait of openness ($\beta = .09$ to $.23$, $p < .001$ to $.050$). In regard to protective facets, the conscientiousness facet of self-discipline was identified as the strongest negative predictor of lassitude ($\beta = -.20$, $p < .001$), followed by the extraversion facet of positive temperament, the conscientiousness facet of order and the broad trait of conscientiousness, and the agreeableness facet of trust ($\beta = -.10$ to $-.15$, $p < .001$ to $.050$).

In the face of stress, HLM results identified significant interactions between stress and a neuroticism facet when predicting symptoms of lassitude (see Table 6). The neuroticism facet of depression combined with stress as the strongest positive predictor of lassitude ($\beta = .08$, $p = .008$), followed by the broad trait of neuroticism ($\beta = .06$, $p = .039$). There were no significant negative interactions predicting lassitude.

Overall, neuroticism facets of somatic complaints and depression were the strongest facet predictors of lassitude, though depression was the only facet to maintain predictive significance in the face of stress. Similarly, self-discipline and positive temperament emerged as strong protective facets, though only at baseline. However, the personality facet of self-discipline just missed significance when combined with stress ($\beta = -.06$, $p = .051$).

Checking Behaviors

HLM analyses identified predictors of checking behaviors underlying the general traits of

neuroticism and agreeableness, as well as facets not associated with any of the higher-order traits (see Table 4). Specifically, the neuroticism trait of anxiety was identified as the strongest predictor of checking behaviors (β = .26, $p < .001$), followed by the broad trait of neuroticism, the neuroticism facets of somatic complaints, depression, and anger proneness, the unassociated facets of emotional resonance, eccentric beliefs, dependency, and unusual experiences, and the neuroticism facet of envy (β = .10 to .24, $p < .001$ to .050). Agreeableness facets evidenced differing contributions to checking behaviors, as the agreeableness facet of empathy positively predicted checking behaviors (β = .10, $p = .044$), whereas its facet of trust vs. cynicism negatively predicted checking behaviors (β = -.11, $p = .023$).

Checking behaviors were significantly predicted by the interaction of stress with facets underlying neuroticism and extraversion, as well as additional facets not associated with higher-order traits (see Table 6). The unassociated personality facet of unusual experiences (β = .13, $p < .001$) was identified as the strongest positive predictor of checking behaviors, when combined with stress, followed by the neuroticism facet of anxiety, the broad trait of neuroticism, the neuroticism facets of depression and somatic complaints, the unassociated facet of emotional resonance, the extraversion facet of sociability, and its broad trait of extraversion (β = .07 to .12, $p < .001$ to .050). There were no significant interactions with stress that negatively predicted checking behavior symptoms.

Overall, anxiety and unusual experiences emerged as the strongest predictors of checking behaviors at baseline and in response to stress, respectively. Depression and somatic complaints were also important predictors both at baseline and in the face of stress. Trust emerged as the only facet to negatively predict checking behaviors, though this was no longer significant in response to stress.

Cognitive Functioning

HLM analyses found that facets underlying conscientiousness, neuroticism, and extraversion significantly predicted cognitive functioning (see Table 5). In regard to risk, the neuroticism facet of somatic complaints negatively predicted self-reported cognitive functioning abilities (β = -.14, p = .003). When examining protective facets, the conscientiousness facet of self-discipline emerged as the strongest predictor of better cognitive functioning (β = .16, p < .001), with additional predictors including the general trait of conscientiousness and its facet of order, extraversion facets of ascendance, venturesomeness, and positive temperament, and the broad trait of extraversion (β = .09 to .12, p = .007 to .045).

In the face of stress, HLM analyses identified significant interactions with stress and personality facets associated with neuroticism and conscientiousness that significantly predicted self-reported cognitive functioning (see Table 7). In terms of risk, the neuroticism facet of somatic complaints interacted with stress as the strongest negative predictor of self-reported cognitive functioning (β = -.09, p = .009), followed by the broad trait of neuroticism (β = -.07, p = .044). In regard to resiliency, the conscientiousness facet of dutifulness (β = .10, p = .005) emerged as the strongest positive predictor of cognitive functioning abilities when combined with stress, followed by the conscientiousness facet of self-discipline (β = .07, p = .029).

Overall, somatic complaints emerged as the strongest facet predictor of cognitive functioning difficulties, both at baseline as well as in the face of stress. Surprisingly, this was the only facet that predicted cognitive functioning difficulties with or without the presence of stress. Self-discipline emerged as an important protective predictor of cognitive functioning difficulties at baseline and in response to stress, whereas dutifulness emerged as a strong predictor in the face of stress.

Sleep Functioning

Self-reported sleep functioning was significantly predicted by facets underlying neuroticism, agreeableness, and openness (see Table 5). In regard to risk, the broad trait of openness was identified as the strongest negative predictor of high quality sleep (β = -.14, *p* = .004), followed by the neuroticism facets of anxiety, somatic complaints, and openness facets of intellectance and nontraditionalism (β = -.10 to -.13, *p* = .013 to .044). The agreeableness facet of trust vs. cynicism was the only personality facet that emerged as a significant positive predictor of high quality sleep (β = .10, *p* = .040).

Although several personality facets predicted sleep functioning when not combined with stress, HLM analyses did not identify any significant interactions among stress and personality that predicted self-reported sleep functioning (see Table 7).

Overall, anxiety and somatic complaints were the strongest facet predictors of sleep difficulty, though these facets were no longer predictive in the face of stress. Similarly, trust was the only protective facet to predict sleep functioning, though it was also no longer significant in response to stress.

Social Functioning

HLM results identified facets underlying all five of the broad personality domains as predictors of self-reported impairment in participants' ability to participate in social roles and activities (see Table 5). The neuroticism facet of somatic complaints emerged as the strongest predictor of social functioning difficulties (β = .15, *p* = .002). Additional predictors of impaired social functioning included the broad trait of neuroticism, the conscientiousness facet of achievement striving, the openness facet of nontraditionalism, the broad trait of openness, and

the extraversion facet of frankness (β = .09 to .10, *p* = .031 to .048). Agreeableness facets served different functions in contributing to social difficulties, as its facet of empathy positively predicted social functioning problems (β = .11, *p* = .012), whereas its facet of trust vs. cynicism was identified as the only negative predictor of difficulty managing social roles and activities (β = -.15, *p* = .001).

HLM analyses identified significant interactions between stress and facets underlying extraversion and conscientiousness in predicting self-reported difficulty with social roles and activities (see Table 7). In particular, the extraversion facet of frankness emerged as the only facet to interact with stress to positively predict social functioning difficulties (β = .10, *p* = .004). In terms of negative predictors, the conscientiousness facet of dutifulness negatively predicted difficulty fulfilling social roles and activities (β = -.08, *p* = .024).

Overall, somatic complaints and frankness were important predictors of social functioning difficulties; frankness was the only facet to predict social functioning both at baseline and in the face of stress. Protective facets differed with the introduction of stress, as trust was the only predictor at baseline and dutifulness was the only protective predictor in response to stress.

Fatigue

Self-reported symptoms of fatigue were significantly predicted by neuroticism, conscientiousness, openness, and extraversion facets (see Table 5). In particular, the neuroticism facet of somatic complaints was the strongest predictor of fatigue (β = .17, *p* < .001), followed by the neuroticism facet of depression, the broad trait of neuroticism, the openness facets of nontraditionalism and intellectance, and the broad trait of openness (β = .08 to .13, *p* = .003 to

.045). The conscientiousness facet of self-discipline (β = -.13, *p* = .002) emerged as the strongest negative predictor of self-reported fatigue, followed by the extraversion facet of positive temperament (β = -.10, *p* = .020).

Although fatigue was significantly predicted by several personality facets when examined individually, HLM analyses only identified a single interaction predicting self-reported fatigue levels (see Table 7). Specifically, the unassociated facet of unusual experiences interacted with stress to positively predict self-reported fatigue levels (β = .07, *p* = .040). There were no significant interactions with stress that negatively predicted fatigue.

Overall, somatic complaints and depression were important predictors of fatigue, though only at baseline. Unusual experiences facet was also important, though only in response to stress. Similarly, self-discipline and positive temperament were important protective facets at baseline, though not in the presence of stress. There were no personality facets that maintained their importance as predictors both at baseline and in the face of stress.

Summary of Predictive Utility of Personality Facets over Broad Traits

To determine the predictive utility of personality facets in the presence of stress, estimates derived from HLM analyses were compared. Broadly, personality facets emerged as the strongest predictor in four of the five analyses predicting mental health outcomes (i.e., unassociated facets were the only significant predictors of the sixth analysis) when combined with stress. If looking solely at personality facets underlying the broad five domains, and excluding the unassociated facets, facets emerged as the strongest predictor in three of the five mental health analyses in the presence of stress. Additionally, personality facets emerged as the strongest predictors when interacting with stress to predict both behavioral functioning

outcomes. In general, these results lend support for Hypothesis 1. Specific results regarding each personality trait and its underlying facets are reported below (see Tables 6 and 7).

At least one neuroticism facet demonstrated a stronger estimate than the broad trait of neuroticism in three mental health analyses and one functioning analysis, whereas the broad trait provided stronger estimates than its facets in two mental health analyses (i.e., ill temper and panic). The broad trait of extraversion and/or its facets were identified as significant predictors in three mental health and one functioning outcome analyses; facet estimates were stronger than the broad trait estimates in all of these analyses. Similarly, conscientiousness and/or its facets combined with stress to become significant predictors in three mental health outcome analyses and two behavioral functioning analyses; facets were strongest in each of these analyses. Similarly, agreeableness facets provided the strongest estimate in all three mental health outcome analyses in which agreeableness and/or its traits emerged as a significant predictor; there were no significant agreeableness predictors of functioning outcomes. Openness and its facets, when interacting with stress, did not significantly predict any mental health or functioning outcome. These results continue to lend broad support to the importance of examining personality at a facet level, as posited by Hypothesis 1.

Personality at Baseline

Although the first hypothesis pertained to personality interactions with stress, analyses focused specifically on personality at baseline (i.e., not in response to stress) also lent broad support for the first hypothesis. Specifically, personality facets emerged as the strongest predictor in all six analyses focused on mental health outcomes, as well as three of the four analyses focused on functioning outcomes. Results specific to each personality trait and its facets

are described below and can be seen in Tables 4 and 5. These results also lend broad support for the predictive utility of personality facets.

In regard to specific traits and facets, at least one neuroticism facet provided a stronger estimate than the broad trait of neuroticism in every mental health outcome analysis and in all functioning outcome analyses. Extraversion facets also demonstrated stronger prediction than the broad trait of extraversion. In particular, extraversion facets were only significant for one mental health outcome analysis and three functioning analyses; at least one extraversion facet was identified as the strongest predictor in all of these analyses. At least one conscientiousness facet demonstrated a stronger estimate than the broad trait in all four of the analyses predicting mental health outcomes in which any conscientiousness trait or facet emerged as a significant predictor. Similarly, conscientiousness facets were strongest in all three of the analyses focused on functioning outcomes in which any conscientiousness trait or facet was a significant predictor.

However, results regarding the predictive utility of agreeableness facets were mixed. Facets provided stronger estimates than the broad trait in three analyses focused on mental health outcomes; however, the broad trait of agreeableness was stronger than traits in analyses focused on ill temper and panic. Agreeableness facets demonstrated stronger estimates than the broad trait for both of the functioning outcome analyses in which any agreeableness facet/trait was significant. Results regarding the predictive utility of openness facets were also mixed, though facets provided stronger estimates than the broad trait in the vast majority of analyses. Openness facet estimates were stronger than broad trait estimates in all three of the mental health analyses in which openness facets were significant predictors and in two of the three behavioral functioning analyses in which openness or its facets were significant. Overall, when including analyses with and without the presence of stress, personality facets were the strongest predictor

in 90% of analyses (i.e., 47/52 analyses), supporting the importance of personality facets as predictors of mental health and behavioral functioning.

Summary of Strength of Personality Facets

Hypothesis 2 proposed that specific facets underlying the broad traits of neuroticism, extraversion, and conscientiousness would demonstrate the largest effects on the dependent variables of interest. These results were determined based on the HLM analyses already reported for Hypothesis 1. In particular, the neuroticism facets of anxiety, depression, and anger proneness were predicted to emerge as the strongest predictors of risk. One of these facets emerged as the strongest predictor of risk in three of the six mental health outcome analyses at baseline (see Table 4); specifically, depression most strongly predicted dysphoria, anger proneness most strongly predicted ill temper, and anxiety most strongly predicted checking behaviors. In the remaining three mental health outcome analyses, these facets (and all other facets) were outperformed by the neuroticism facet of somatic complaints (i.e., panic, insomnia, lassitude). Thus, Hypothesis 2 is only partially supported by these results, though these results lend support for neuroticism facets in general as being most predictive of risk in terms of psychopathology. However, in regard to behavioral functioning analyses, none of these three predicted facets emerged as the strongest predictors of behavioral functioning difficulties (see Table 5). Instead, these facets were again outperformed by the neuroticism facet of somatic complaints in regard to cognitive functioning, social functioning difficulties, and fatigue. The broad trait of openness outperformed these and all facets in predicting risk related to sleep functioning; however, the predicted trait of anxiety was the second strongest predictor in sleep functioning analyses (and the strongest predictor when looking only at facets). When focused on

risk predictors and behavioral functioning outcomes, Hypothesis 2 is not supported by the current results.

In regard to protective personality facets, Hypothesis 2 posited that the extraversion facets of positive temperament and sociability, in addition to the conscientiousness facets of self-discipline, achievement-striving, and dutifulness, would be the strongest protective predictors. One of these predicted facets emerged as the strongest protective predictor in three of the six mental health outcome analyses (see Table 4). Specifically, the conscientiousness facet of self-discipline was the strongest protective predictor of dysphoria and lassitude, whereas the conscientiousness facet of dutifulness was the strongest protective predictor of panic. These hypothesized facets were outperformed by the agreeableness facet of straightforwardness in regard to insomnia, the agreeableness facet of trust vs. cynicism in regard to checking behaviors, and the overall trait of agreeableness in regard to ill temper. However, it should be noted that the hypothesized conscientiousness facet of dutifulness emerged as the strongest facet predictor of ill temper (following the broad trait of agreeableness). In general, these results only lend partial support for the protective facets component of Hypothesis 2. Regarding behavioral functioning analyses, one of the hypothesized facets emerged as the strongest protective predictor in two of the four analyses (see Table 5). In particular, the conscientiousness facet of self-discipline was the strongest predictor in regard to cognitive functioning and fatigue, whereas the hypothesized facets were outperformed by the agreeableness facet of trust vs. cynicism in relation to sleep functioning and social functioning difficulties. Behavioral functioning results in regard to protective personality facets only partially supported Hypothesis 2.

Personality x Stress

Strength of the interaction between personality facets and stress were explored in relation to the predictions proposed in Hypothesis 2. Briefly, the neuroticism facets that were proposed as being the strongest predictors of risk (i.e., anxiety, depression, anger proneness) emerged as the strongest risk predictors in two of the six mental health outcome analyses (see Table 6). Specifically, the neuroticism facet of depression was the strongest predictor of dysphoria and lassitude. The proposed neuroticism facets were outperformed by the unassociated facet of unusual experiences in predicting panic and checking, the unassociated facet of eccentric beliefs in predicting insomnia, and the overall trait of neuroticism in predicting ill temper. However, the neuroticism facet of depression was the second strongest predictor of ill temper and was the strongest predictor when looking solely at personality facets (and excluding broad traits). If examining only personality facets related to the broad five domains (and excluding broad traits and unassociated facets), the hypothesized facets were the strongest predictors of risk in all five mental health analyses in which a personality facet underlying the broad five domains emerged as a significant predictor. The hypothesized personality facets were not the strongest predictors of risk in any of the four behavioral functioning analyses (see Table 7). Similar to the results focused solely on personality, results from personality x stress interactions only partially supported Hypothesis 2 predictions in regard to risk predictors of mental health difficulties; these results did not support the hypothesis for behavioral functioning outcomes.

When interacting with stress, personality facets hypothesized to most strongly predict resiliency were identified as the strongest predictors in all three mental health functioning analyses in which protective predictors emerged (see Table 6). Specifically, the conscientiousness facet of self-discipline was the strongest protective predictor of dysphoria,

whereas the conscientiousness facet of dutifulness was the strongest protective predictor of ill temper and panic. The remaining three mental health analyses (i.e., insomnia, lassitude, and checking) did not have any protective predictors when combined with stress. In regard to behavioral functioning analyses, the hypothesized facets emerged as the strongest predictors of resilience in both behavioral functioning analyses in which a protective interaction between personality and stress was identified (see Table 7). Namely, the conscientiousness facet of dutifulness interacted with stress to serve as the strongest protective predictor related to cognitive functioning and social functioning; the remaining behavioral functioning analyses (i.e., sleep functioning and fatigue) did not have any significant protective interactions between personality and stress. The results from the current analyses support the components of Hypothesis 2 focusing on protective personality facets, when examining personality's role in combination with stress.

CHAPTER 4

DISCUSSION

Previous research has identified a multitude of harmful effects of chronic stress, including higher prevalence of mental health difficulties (Steinhardt et al., 2011; van der Ploeg et al., 2003), fatigue and burnout (Steinhardt et al., 2011; van der Ploeg et al., 2003), and cognitive functioning difficulties (Landolt et al., 2017). Stress resulting from occupational demands has been examined in a variety of high-achieving workforces, including medical students (Backović et al., 2012; Midtgaard et al., 2008), forensic doctors (van der Ploeg et al., 2003), and astronauts (Endler, 2004; Manzey & Lorenz, 1999), with results again emphasizing the association among high levels of stress and resulting fatigue, burnout, and other deleterious effects. The current study sought to further examine the influence of time-varying levels of perceived stress in a chronically stressed sample of graduate students, medical residents, and professionals in STEM fields. Further, the current study aimed to expand upon research identifying the utility of personality as a predictor of the differences among how various individuals respond to situations (Sarkar & Fletcher, 2014), such as occupational stress. Specifically, the extant personality literature has often identified personality characteristics as playing an important role in an individual's risk (Goldstein et al., 2017; Kotov et al., 2010; Spinhoven et al., 2014) or resilience (Bonanno, 2004; Lee et al., 2013) to psychopathology. More recently, personality researchers have emphasized the importance of examining personality beyond the level of broad higher-order traits and rather focusing attention on the specific facets underlying each of the five overarching personality domains (Paunonen & Ashton, 2001a). Prior studies have attested to the more refined and thus more predictive picture personality facets may provide in understanding individual differences (Paunonen, 2003; Watson et al., 2015). Following suit with this line of

research, the current study aimed to provide a more refined and comprehensive understanding of how particular personality facets may play a role in responding to occupational stress in a high-achieving and chronically stressed sample, such as STEM field trainees and professionals.

Prevalence and Effects of Stress in High-Achieving Professionals

The current study identified a high prevalence of perceived stress in the current sample, with moderate levels of perceived stress identified for the sample across each data collection point. Further, results from this study indicated severe levels of perceived stress in approximately 20% to 28% of the sample at various time points. These results are consistent with research that attests to the prevalence of high levels of stress in associated professions such as medical students (Backović et al., 2012; Midtgaard et al., 2008) and astronauts (Endler, 2004; Manzey & Lorenz, 1999), further supporting the need for stress management and resiliency-based training programs in these and other high-demand occupations. Additionally, HLM analyses in the current study identified all mental health and behavioral functioning difficulties currently assessed as being a function of high levels of perceived stress, consistent with a long history of studies supporting the link between stress and its impact on psychopathology and functioning (De Francisco et al., 2016; Newbury-Birch & Kamali, 2001; Schwab-Reese et al., 2017). Fortunately, research examining the utility of resiliency-based training programs has found promising results regarding the improvement of resiliency skills (Grotberg, 1998; Peng et al., 2014), including problem-solving skills, emotion regulation abilities, and the utilization of resources, which are likely to aid individuals in better managing and responding to the chronic demands and stressors of their careers. Moreover, these results further attest to the importance of understanding the contributions personality may play in how individuals respond to stressful

situations, particularly in terms of the potential impacts stress may have on mental health and behavioral functioning.

Strength of Personality Facets as Predictors of Mental Health and Behavioral Functioning

HLM analyses of the personality facets and traits assessed through the FI-FFM broadly supported the hypothesis that personality facets would serve as the strongest predictors of mental health and behavioral functioning outcomes in the presence of stress by displaying stronger estimates than their overarching personality traits. When combined with stress, personality facets were again the strongest predictor in all mental health analyses, with the exception of one analysis in which only unassociated facets emerged as significant interactions, and in all behavioral functioning analyses. Additionally, at baseline, personality facets emerged as the strongest predictor in all mental health analyses and in all but one behavioral functioning analysis. These results lend general support to prior research highlighting the strong and refined prediction provided by personality traits (Goldstein et al., 2017; Rector et al., 2012; Spinhoven et al., 2014), and thus is consistent with prior studies emphasizing the importance of examination of personality at a facet-level (Paunonen, 2003; Paunonen & Ashton, 2001a; Watson et al., 2015). Further, these results are in line with prior studies that have identified differing relationships in regard to direction and magnitude underlying a particular trait (Siegler & Brummet, 2000; Walton et al., 2017), as seen in the current analyses with the relationships between agreeableness facets and checking behaviors (i.e., empathy positively predicted checking behaviors, whereas trust vs. cynicism negatively predicted, leading the overall agreeableness trait to not reach significance) and reported difficulty fulfilling social roles and responsibilities (i.e., empathy positively predicted social functioning difficulties, whereas trust vs. cynicism negatively

predicted, again leading the overall trait to not reach significance). This pattern of results (i.e., high empathy/tender-mindedness and low trust) has been shown to predict distress disorders (e.g., GAD) and fear disorders (e.g., panic disorder) in prior research (Walton et al., 2017). These results again lend support to the importance of examining the underlying facets to better understand how specific personality characteristics may influence psychological and behavioral functioning, as differing relationships between underlying facets may lead to a loss in predictive ability at the overarching trait level due to muting or cancellation during aggregation (Paunonen, 2003; Paunonen et al., 2003; Stanton & Watson, 2015; Tett et al., 2003). While these results provide promising information regarding the broad predictive utility of personality facets, examination of the strength of personality facets in relation to their associated traits provides further clarification.

Strength of Personality Facets in Relation to Their Overarching Traits

Closer examination of the relative strength of personality facets and their respective overarching traits provides further clarification and important information regarding personality prediction. When combined with perceived stress, at least one personality facet underlying agreeableness, extraversion, and conscientiousness was identified as the strongest predictor in all analyses in which significant findings arose. Neuroticism, on the other hand, provided stronger prediction than its underlying facets in two mental health analyses; openness did not interact with stress to significantly predict any outcome. These analyses lend broad and important support to examining personality at a facet level.

When looking solely at personality at baseline, at least one personality facet provided a stronger estimate than the broad traits of neuroticism, extraversion, and conscientiousness in all

analyses in which either the facet and/or the trait was significant, whereas the broad traits of agreeableness and openness had stronger estimates than their associated facets in two mental health analyses and one behavioral functioning analysis, respectively. In general, these analyses lend greater clarification regarding the association among personality and psychological functioning that has long been supported in the extant literature (i.e., Kotov et al., 2010; Robinson et al., 2014; Watson & Naragon-Gainey, 2014) by providing a closer examination of the underlying facets that are responsible for promoting these associations. Further, as the pattern of results differed slightly when the influence of stress was included in analyses, these results also lend support to the importance of better understanding how stress may interact with personality.

The Influence of Stress on the Emergence of Protective and Harmful Personality Facets

Notably, examining the role of personality in predicting mental health and behavioral functioning outcomes both individually and in the presence of stress enabled examination of whether a personality facet maintained or changed its predictive role (i.e., significance) when combined with stress. In general, these results identified a multitude of facets that steadfastly maintained their predictive ability in both sets of analyses, but also discovered facets that were significantly influenced by the presence of stress (see Tables 4-7). For example, personality facets that once appeared to play a more neutral role (evidenced by not reaching significance in initial analyses) appeared to be called into action once interacting with stress: in some cases, in a role that promoted resiliency (e.g., positive temperament and dysphoria, self-discipline and ill temper, order and panic), and in other cases, a role that promoted risk (e.g., anger proneness and dysphoria, unusual experiences and ill temper, envy and panic). These changes highlight the

dramatic influence strain and stress may have on an individual's functioning and again bring light to some of the more harmful effects, as well as some of the more protective effects, brought about by stress.

Additionally, HLM analyses provided insight into instances in which the opposite effect occurred. For example, in some cases, personality facets that were once protective no longer provided a significant prediction when combined with stress (e.g., trust vs. cynicism and insomnia, positive temperament and lassitude, ascendance and cognitive functioning). These results may suggest that the protective effects of these personality characteristics are muted or overpowered by stress, thus causing these facets to no longer serve a beneficial role in periods of high stress. Although this is only one possible explanation for the change in significance, this possibility further necessitates the importance of identifying and implementing effective stress management resources for individuals exposed to high levels of transient and chronic stress.

More surprisingly, some personality facets that served as predictors of risk were no longer significant when combined with stress (e.g., eccentric beliefs and panic, anxiety and insomnia, somatic complaints and lassitude). This may suggest that in these instances, the personality facets and stress are both harmful on their own, and thus their influence does not vary in the presence of the other. However, further research to elucidate the different patterns found in these results is likely to be beneficial in providing a more nuanced understanding of the influences of personality and stress on functioning.

The Role of Neuroticism in Risk

The current study aids resiliency and psychopathology research by further clarifying and identifying the personality traits and facets that emerge as important contributors to risk or

resiliency, particularly in high-achieving and chronically stressed individuals. Notably, neuroticism and its facets were identified as robust predictors of psychopathology, as consistent with prior studies (Goldstein et al., 2017; Kotov et al., 2010; Robinson et al., 2014). The facets of anxiety, depression, and anger proneness were hypothesized to contribute strongest to risk, based on prior literature identifying their negative impacts on functioning (e.g., Goldstein et al., 2017; Naragon-Gainey & Watson, 2014; Walton et al., 2017). This hypothesis was only partially supported in the current study in regard to mental health functioning, as at least one of these facets emerged as the strongest predictor in just under half of the mental health analyses (with and without stress); this hypothesis was not supported in regard to behavioral functioning analyses.

Instead, the neuroticism facet of somatic complaints was identified as the strongest predictor in three mental health analyses and three behavioral functioning analyses when not combined with stress, and one behavioral functioning analysis when combined with stress. This particular personality facet is less mentioned in the extant literature; specifically, as there is a lack of consensus regarding the specific facets underlying the broad five traits (Goldberg, 1999; Watson et al., 2015), different measures contain different facets. In fact, commonly used personality measures assessing the five-factor model of personality have not contained a facet specific to somatic complaints, including the Big Five Inventory (contains anxiety, angry hostility, depression, self-consciousness, impulsiveness, vulnerability; John & Srivastava, 1999), the NEO-PI-R or the more recent NEO-PI-3 (contain anxiety, angry/hostility, depression, self-consciousness, impulsiveness, vulnerability; Costa & McCrae, 1992; McCrae, Costa, & Martin, 2005), nor the Personality Inventory for DSM-5 (negative affect domain contains emotional lability, anxiousness, separation insecurity; American Psychiatric Association, 2013). Indeed, the

FI-FFM is the only known hierarchical measure of personality that currently assesses somatic complaints as a facet underlying neuroticism (Watson et al., 2017). The strength of somatic complaints as a predictor is in line with findings by Watson et al. (2017), which found that the somatic complaints facet was the strongest single predictor of anxiety and depression and added significant incremental validity in many analyses. Traditionally, somatization is described as an individual's expression of distress through bodily complaints (Kleinman & Good, 1985, as cited in Grassi, Caruso, & Nanni, 2013) and somatic concerns are well knowns for their association with anxiety and depression and for being part of the physical manifestations of these disorders (Carlehed, Katz, & Nordin, 2017; Chaturvedi & Desai, 2013; Haug, Mykletun, & Dahl, 2004). Given the strength of the contribution this facet has shown in the current analyses and in prior analyses (i.e., Watson et al., 2017), and its association with anxiety and depression, this facet focusing on subjective experiences of bodily pain or discomfort serves as an important indicator of risk to psychopathology. Thus, it is clear that the inclusion of this facet alongside the personality facets of anxiety and depression underlying neuroticism is an important addition to hierarchical personality assessment.

Further, the examination of neuroticism facets as predictors of risk lends greater refinement to the understanding between neuroticism and psychopathology. Generally, the facets of anxiety, depression, and somatic complaints were broadly related to poorer mental health functioning, whereas the facets of anger proneness and envy related to fewer mental health outcomes. However, these facets maintained (i.e., anger proneness) or improved (i.e., envy) their prediction when combined with stress. It is also notable that the robust effects of neuroticism, often reported in the literature (Robinson et al., 2014), are shown to still greatly impact even high-functioning individuals.

The Role of Extraversion and Conscientiousness Facets as Predictors of Resilience

The current analyses also provided important clarification for the role of personality as a predictor of resilience in chronic stress situations. Specifically, the second portion of Hypothesis 2 predicted that specific facets underlying extraversion (i.e., positive temperament and sociability) and conscientiousness (i.e., self-discipline, achievement striving, and dutifulness) would emerge as the strongest predictors of resilience. This hypothesis was partially supported for mental health analyses (3/6) and behavioral functioning analyses (2/4) prior to the addition of stress, as the conscientiousness factors of self-discipline and dutifulness emerged as the strongest predictors in four and one of these analyses, respectively. With the addition of stress, one of the hypothesized facets emerged as the strongest predictor in all analyses in which there were significant protective interactions (i.e., three mental health analyses and two behavioral functioning analyses), in which the conscientiousness facet of dutifulness was the strongest for four analyses and the conscientiousness facet of self-discipline as the strongest for one. Generally, the identification of conscientiousness facets as the strongest predictors of protection and/or resiliency in many of these analyses is consistent with prior studies attesting to the strong and protective effects of conscientiousness (Chapman & Goldberg, 2011; Kotov et al., 2010; Poropat, 2009; Quevedo & Abella, 2011). Given the importance of these facets in promoting better functioning and resiliency with and without the interaction of transient perceived stress in a chronically stressed sample, these results highlight the necessity of promoting strategies aimed at boosting characteristics associated with conscientiousness in general, and self-discipline and dutifulness in particular.

Unexpected Personality Facets Emerging as Predictors of Risk

Finally, there were several surprising results from the current study, in relation to facets that emerged as unexpected predictors and facets that were less predictive than expected. For example, the conscientiousness facet of achievement-striving was hypothesized to be a strong predictor of resilience, based on prior research identifying orientation towards achievement as an important component of resilience (Werner, 1996) and research reporting the role between achievement striving and life satisfaction (Quevedo & Abella, 2011). However, in the current study, achievement-striving was less predictive than expected. In fact, achievement-striving was only significant in one interaction and in a direction other than expected, as it significantly predicted greater reported difficulty fulfilling social activities and roles. One possible explanation for the lack of significant predictions made by this facet may be that this study contained a very high-achieving sample, as they were all trainees and professionals within STEM fields. Specifically, this range restriction may have resulted in limited variance in this facet among participants. As such, effects of this facet may be underestimated in the current sample. Additionally, the role of achievement-striving as a predictor of risk regarding social functioning is likely to relate to the interference that high work demands and chronic stress may place on individuals within STEM fields, particularly those who are especially high-achieving, thus limiting their ability to maintain active social lives.

The openness facet of nontraditionalism emerged as a predictor of risk in relation to dysphoria, lassitude, sleep difficulty, fatigue, and social functioning difficulties. This facet has shown moderate correlations with NEO facets of values (.46) and fantasy (.34) (Watson et al., 2017), the latter of which has been identified as negatively relating to the well-being facet of self-acceptance (Siegler & Brummett, 2000) and job training performance (Ziegler et al., 2014).

However, the facets of values and fantasy have also shown differing relationships in terms of academic achievement, as values positively predicted achievement, whereas fantasy served as a negative predictor (Gatzka & Hell, 2018). The FI-FFM facet of intellectance, described as being a combination of openness to culture, intellectual curiosity, and creativity (Watson et al., 2017), also served as a predictor of risk related to dysphoria, insomnia, sleep difficulty, and fatigue. This was a surprising finding in the current study. As such, future research aimed at further elucidating these associations is likely to be beneficial at better understanding the dynamics involved in these predictions. Given the significant contributions of intellectance and nontraditionalism, which are two of the three openness facets, it is subsequently not surprising that openness itself significantly predicted dysphoria, insomnia, lassitude, sleep difficulty, social functioning difficulties, and fatigue.

In the face of stress, extraversion and its facet of sociability emerged as predictors of risk for checking behaviors. Extraversion and its trait of sociability are commonly negatively associated with internalizing disorders such as social anxiety (Naragon-Gainey et al., 2009; Watson & Naragon-Gainey, 2014) and depression (Goldstein et al., 2017), and extraversion is positively associated with subjective well-being (Arshad & Rafique, 2016). However, the current analyses indicate that personality characteristics that are often protective may become indicators of risk (specifically related to checking behaviors) during high levels of stress. Further, as research has indicated high extraversion is associated with perceptions of higher job demands (Törnroos et al., 2013), further exploration into the association among extraversion, sociability, and checking behaviors during times of stress is encouraged. Additionally, the agreeableness facet of empathy also positively predicted checking behaviors (not in the face of stress). As empathy contains a focus on consideration of the needs for others (Watson et al., 2017), this may

reflect a tendency to be vigilant towards one's surroundings and others, and how one can influence others. In fact, the facet of tendermindedness has been shown to positively relate to internalizing disorders, such as distress- and fear-based disorders, like GAD, posttraumatic stress, and panic disorder, although it showed no relation to obsessive-compulsive disorder (Walton et al., 2017). Further research examining these associations are warranted.

Generalizability, Limitations, and Future Directions

The selection of participants for the current study was highly specified in order to accurately reflect high-achieving and highly educated individuals who are exposed to chronic occupational stress and high demands, to be reflective of astronauts. Further, all participants were recruited through graduate and postgraduate training programs and the great majority of participants were Asian (48%) or Caucasian (38.7%). As such, the results from the current analyses are best representations of this same population and may be less generalizable for individuals who do not resemble these characteristics. Inclusion of different sample characteristics, such as changes in occupation, education level, age, and ethnicity, in future studies may provide a more comprehensive view on the associations found here between personality, mental health, and behavioral functioning, and to determine if these associations are also evident in diverse populations. For example, as prior research has reported the importance of orientation towards achievement as a component of resiliency (Werner, 1996), it may be interesting to see if this personality facet evidences a stronger predictive role in other samples.

Strengths and Limitations of the Current Study

The current study contains several notable strengths. First, this study examined the

predictive role of personality at a facet level, adding to a body of research that has emphasized the improved utility and refined prediction provided by personality facets (Paunonen, 2003; Watson et al., 2015). This importance was demonstrated in the current results in several ways: when looking at particular traits and their underlying facets, at least one facet often emerged to provide a stronger estimate than the overall trait, further emphasizing the trait-specific variance of each facet, and thus their contribution to prediction. Further, not all facets underlying a particular trait were significant in each outcome analysis, providing greater clarification about the association between personality, mental health, and behavioral outcomes, thus identifying the particular facets responsible for these associations and allowing for the more refined tailoring of clinical interventions (Goldstein et al., 2017). Moreover, the current study identified two instances in which the predictive utility of the overall trait was muted due to the cancelling out of its underlying facets, as has been previously discussed in the literature (i.e., Watson, 2015). Second, the current study used time-varying predictors of stress, mental health outcomes, and behavioral outcomes, to provide a more comprehensive view of the way stress and personality may interact to influence functioning over time. Finally, this is the first study in our awareness to look at the influence of transient stress in chronically stressed and high-achieving individuals to see how personality may interact with stress to predict risk or resiliency. As such, this study provides important information about the prevalence and effects of stress in this population and begins to identify personality characteristics that may be especially useful to target via interventions meant to improve functioning and boost resiliency.

However, study conclusions should be considered within the context of current limitations. Although missingness was not a large issue for the current study, wave-specific attrition was noted during several of the follow-up waves. Although missing values were

accounted for during scale calculation and by HLM with FIML for analyses, it is possible that particular participants' results may have differed if they had completed every data collection wave. However, the increase in incentive for the final follow-up period appeared to greatly improve retention, as all participants completed the final battery. Second, due to time constraints, the current study included only approximately half of the scale items for agreeableness and openness facets. Additionally, the majority of these facets evidenced low alpha levels, which may have been influenced by the administration of shortened scales. Although some of these facets demonstrated significant prediction during the current analyses, it is possible that the administration of half of the scale items may have influenced the results and the resulting predictions. Future research containing the FI-FFM traits and facets in their entirety may be important in allowing for a more in-depth analysis of these particular facets and their contributions to functioning under stress. Despite these limitations, the current study provides valuable insight into the specific personality characteristics that may emerge as predictors of risk or resiliency under stress.

Implications

The findings of the current study have important implications for high-achieving individuals, such as those in STEM fields. Particularly, the prevalence of high transient stress levels in this prospective longitudinal study emphasizes the potentially stressful and demanding experience such occupations can be for some high-achieving individuals, such as those in STEM fields. As high levels of perceived stress positively predicted all mental health difficulties and poorer behavioral functioning, the importance of implementing effective stress management and resiliency training programs for these individuals cannot be understated. Fortunately, research

studies examining the potential benefits of programs focusing on building resiliency skills (such as problem-solving abilities, strengthening emotion regulation, learning to efficiently use resources, and shaping cognitive appraisal of stressful events; Grotberg, 1998; Peng et al., 2014) have found promising results supporting the notion that resiliency can be learned and improved (Arnetz et al., 2009; Brennan & McGrady, 2015; Peng et al., 2014; Rose et al., 2013). In addition to resiliency building programs, the broader literature on interventions for occupational stress has encouraged the use of stress management interventions such as cognitive-behavioral techniques (Richardson & Rothstein, 2008), mindfulness-based interventions (Mahon, Mee, Brett, & Dowling, 2017), and interventions combining both of these interventions (Rohlf, 2018), with components such as psychoeducation, coping skills training, and relaxation strategies (Rohlf, 2018), as well as self-compassion training (Mahon et al., 2017). For example, mind-body workplace stress reduction interventions, such as mindfulness-based and therapeutic yoga-based programs, have been shown to lower levels of stress (Wolever et al., 2012). The benefits and effectiveness of organizational wellness programs, stress management interventions, and the importance of incorporating the two has been discussed within the literature (Richardson, 2017). Other research focusing more specifically on components of the work environment, such as improving job control, has also found positive results (Holman & Axtell, 2016), which is consistent with what would be expected based on the demand-control model of job strain (Karasek, 1979). In addition to these effective and more general stress management interventions, the results from the current study provide important information that suggests tailoring interventions to personality characteristics may also be beneficial.

Specifically, the results from the current study have identified important personality characteristics that are predictive of resiliency, and those that are indicative of risk, in the face of

stress. Fostering the development and strengthening of these protective personality facets, while decreasing harmful facets, therefore appears to be an important and potentially useful intervention that may contribute to resiliency and improved functioning in the face of stress in the future. Fortunately, personality has been shown to change across the lifespan (Debast et al., 2014; Specht, Egloff, & Schmukle, 2011) as a result of both genetic and environmental factors (Bleidorn, Kandler, Riemann, Angleitner, & Spinath, 2009). Particularly relevant to the findings of the current study, individuals have been reported to become more conscientious and more emotionally stable (i.e., demonstrating less neuroticism) over time, especially in early adulthood (Roberts, Walton, & Viechtbauer, 2006). Broadly, personality has been shown to influence the occurrence of life events (i.e., "selection effects"), while also being changed as a result of them (i.e., "socialization effects") (Specht et al., 2011). For example, personality has been shown to change as a result of environmental influences such as work. Relevant to the current study, research has found that higher job stress has been shown to increase neuroticism and decrease extraversion and conscientiousness over time (Wu, 2016). However, in regard to more positive change, this study also found that increasing job control can influence higher levels of agreeableness, conscientiousness, and openness. Thus, the reported malleability of personality suggests that influences tailored to boost, or lessen, particular personality characteristics may be an important avenue for both clinical intervention and research, particularly as prior research has identified personality change following clinical intervention (Piedmont, 2001; Roberts, Luo, Briley, Chow, Su, & Hill, 2017). Similarly, research focusing on development of skills or behaviors associated with particular personality traits or facets is likely to be equally beneficial, providing a bottom-up approach to change.

Conscientiousness

Generally, personality facets related to the broad trait of conscientiousness were identified as important protective characteristics on their own and when combined with stress. Fortunately, research has supported the notion that conscientiousness generally increases with age, with the exception of a slight decrease in old age (Specht et al., 2011). In fact, conscientiousness was found to demonstrate the largest change of all personality traits from adolescence to early adulthood (Elkins, Kassenboehmer, & Schurer, 2017). Moreover, the rank-order consistency (referring to stability or change of personality facet placement relative to other individuals) of conscientiousness has also been reported to increase across adulthood (Specht et al., 2011). In regard to specific facet-level changes, the findings from one study suggest that the conscientiousness facets of impulse control (i.e., ability to inhibit responses) and reliability (i.e., responsibility and dependability) increase across the lifespan, whereas the facet of industriousness (i.e., being hardworking) increases from young adulthood to middle adulthood, and the facet of conventionality (i.e., tendency to follow social norms) increases from middle adulthood to older adulthood (Jackson et al., 2009).

Conscientiousness emerges in childhood, with researchers positing that development of the skills associated with its components of self-regulation, dutifulness, and industriousness in early life contribute to later conscientiousness (Eisenberg, Duckworth, Spinrad, Valiente, 2014). In their review of developmental literature, Eisenberg and colleagues (2014) discussed important strategies for the development of these skills (such as having secure parent-child attachment, parental coaching, and assisting children with understanding and managing emotions), effective parenting strategies and discipline techniques that promote self-control and self-regulation (such as modeling appropriate behavior and calmly setting clear limits; for information on ‘persistent

persuasion,' see Eisenberg et al., 2014). Conceptually, these parenting strategies are similar to those found in therapeutic interventions such as child-centered play therapy, which has been shown to improve self-efficacy in children (Lin & Bratton, 2005; Ray, Armstrong, Balkin, & Jayne, 2015). Self-efficacy is likely to be an important building block of conscientiousness in general, and the facets of self-discipline and dutifulness in particular, though future research examining this association is warranted. Future research examining the influence of child-centered play therapy, as well as other child therapy and parent training interventions that demonstrate a similar focus on building self-efficacy and self-regulation, on the development of skills and traits associated with conscientiousness is recommended.

The results from the current study indicate that the facets of dutifulness and self-discipline were the most important components of conscientiousness in regard to resiliency in this sample. The conscientiousness facet of dutifulness is described as being reliable and demonstrating follow-through with commitments (Simms, 2009), which is conceptually related to responsibility. Responsibility is conceptualized as growing from opportunities to fulfill obligations and take ownership of actions (Roberts, Wood, & Smith, 2005) and is assisted by experiencing challenge when working to meet obligations, feeling motivated to fulfill obligations, and then incorporating the experience of success and responsibility into an individuals' self-concept (Salusky et al., 2014). When describing components of youth programs that aided in this development for adolescents, Salusky and colleagues (2014) identified the importance of having structured but open-ended goals, balancing high expectations with support, and fostering a cohesive atmosphere of teamwork, mutual ownership, and obligation. Thus, inclusion of similar experiences and opportunities appears important in developing and/or strengthening a sense of responsibility, and similarly, dutifulness. In adults, self-leadership

training has been conceptualized as an intervention that teaches the skills associated with conscientiousness in general, and self-discipline in particular, and has been shown to lead to increases in self-directed work behavior in individuals low in conscientiousness (Stewart & Carson, 1996). In this study, training included 1) skills for addressing difficult but necessary tasks; 2) skills for building natural motivation into work; and 3) skills for establishing constructive thinking patterns. Importantly, although the researchers of this study noted that these improvements did not mean there were changes in the actual personality trait of conscientiousness, these results meant that associated skills can be taught and can lead to promising improvements. Personality changes were noted in other studies, though, with increases in conscientiousness found after clinical interventions and training programs, such as mindfulness and social skills, among others (Roberts et al., 2017). Further, researchers have theorized that behavioral activation interventions based on expectancy value theory may be especially useful for increasing conscientiousness, given a focus on values, goal-setting, guided action, and accountability within a detailed structure, among other characteristics (see Magidson, Roberts, Collado-Rodriguez, & Lejuez, 2014, for more information). Additionally, promising results were found from a pilot study of step-wise intentional personality change coaching in identifying and changing desired personality facets, such as those underlying conscientiousness (Martin, Oades, Caputi, 2014a; Martin, Oades, Caputi, 2014b). In general, research on conscientiousness and its underlying facets provide important information on the development of these personality characteristics and promising information regarding developing and shaping these characteristics throughout the lifespan.

Neuroticism

Consistent with prior research (Robinson et al., 2014), neuroticism and its facets often emerged as strong predictors of risk on their own and in the presence of stress. As it is described as the tendency to experience intense negative emotions in response to stress (Sauer-Zavala, Wilner, & Barlow, 2017), this finding is not surprising. Research has indicated neuroticism tends to decrease (e.g., emotional stability increases) through life, particularly from adolescence through the thirties (Roberts et al., 2006). However, another meta-analysis showed only slight decreases in neuroticism until the age of thirty, followed by slight increases until the ages of sixty to seventy, followed by another slight decrease (Specht et al., 2011). The rank-order stability of emotional stability has demonstrated increase over time until the age of fifty to sixty, and then a decrease, with women more stable in this trait than men (Specht et al., 2011). Although this trait is reported to change over the life course, these changes reported are generally small. Thus, understanding the development of neuroticism, and interventions that may help lessen levels of neuroticism, is important.

Neuroticism is conceptualized as the tendency to experience frequent and intense levels of negative emotions, along with belief that the world is a dangerous and threatening place, and perceptions of an inability to control or cope with stress (Barlow, Ellard, Sauer-Zavala, Bullis, & Carl, 2014). Neuroticism is conceptualized as developing through two of the vulnerabilities described in the triple vulnerability theory, namely a genetic vulnerability and a general psychological vulnerability associated with early adverse experiences that have resulted in pervasive perceptions of unpredictability and uncontrollability (for further information regarding the development of neuroticism see Barlow et al., 2014). Not surprisingly, then, research has found associations between neuroticism and an external locus of control and negative cognitive

styles (Barlow et al., 2014). Importantly, Barlow and colleagues (2014) highlighted findings from developmental and attachment literature, noting the importance of consistency and predictability in parenting and early experiences, maternal warmth and responsiveness, and secure attachment relationships for the development of perceptions of control, predictability (and thus safety), and self-efficacy. Further, research findings suggest that neuroticism is associated with a heightened sensitivity to fear associations and to both punishment and reward, perhaps contributing to high baseline arousal levels seen in individuals with high levels of neuroticism (Barlow et al., 2014). Importantly, understanding the development of neuroticism and its underlying characteristics provides important information that can better allow the tailoring of intervention (and prevention) efforts at lessening levels of neuroticism.

Identification of effective interventions that may later shape and lessen levels of neuroticism is important, particularly as neuroticism and its underlying facets often emerged as the strongest predictor of risk in the current study. Fortunately, neuroticism was identified as the personality trait that showed the largest change after clinical intervention in a recent meta-analysis (Robert et al., 2017). Although many therapeutic approaches demonstrated positive impact, the most effective therapies identified for change in neuroticism were cognitive-behavioral, supportive, and mixed therapeutic approaches (Robert et al., 2017). In addition, interventions tailored to decreasing vulnerabilities such as neuroticism include the Unified Protocol for Transdiagnostic Treatment of Emotional Disorders (UP) (Sauer-Zavala et al., 2017). This intervention aims to lessen avoidant emotion regulation strategies by extinguishing aversive reactions to negative emotions and has shown promising results with mental health disorders such as anxiety and depression (Barlow et al., 2017; Sauer-Zavala et al., 2017). Specifically, treatment contains psychoeducation regarding the function of emotions, instruction for

engagement with emotions via mindfulness exercises, focus on cognitive appraisal of emotion-eliciting situations, identifying avoidance behaviors that limit engagement with emotions, increasing tolerance for physiological feelings characteristic of strong emotions, and emotional exposure (Sauer-Zavala et al., 2017). A mindfulness-based cognitive therapy intervention tailored specifically for neuroticism has also been developed, which focuses on stress-reactivity, exploration of the relationship between thoughts and feelings, identification of factors that may contribute to stress, psychoeducation regarding the effects of avoiding stressful and difficult situations, exploration of maladaptive responses to stress, and the introduction of stress-management skills (Armstrong & Rimes, 2016; Sauer-Zavala et al., 2017); results from a pilot study were promising. Importantly, both of these interventions appear well-tailored to the negative cognitive appraisal style and perceptions of uncontrollability described as being characteristic of neuroticism (see Barlow et al., 2014). Other therapeutic interventions, such as those focusing on the exploration of internal working models characteristic of neuroticism (e.g., the world is dangerous, unpredictable, and overwhelming), focusing on the association between thoughts and emotions, and providing opportunity for emotional engagement in a safe and supportive environment, are also likely to be important.

Extraversion and Agreeableness

As extraversion and agreeableness were identified as the strongest predictors in fewer analyses, they will only be discussed quickly. Briefly, extraversion and agreeableness demonstrated important protective prediction in the current study, though extraversion facets were not identified as the strongest predictor in any analysis. More specifically, agreeableness facets emerged as the strongest protective predictors in several analyses prior to the inclusion of

stress. However, not all predictions made by agreeableness and extraversion were protective. Specifically, facets of extraversion and agreeableness were identified as predictors of risk for checking behaviors in the current study, which was surprising. In particular, the agreeableness facet of empathy positively predicted checking on its own, whereas the broad trait of extraversion and its facet of sociability emerged as risk predictors when interacting with stress. In addition, agreeableness facets showed differing relationships to the outcome variable on two occasions: with checking behaviors and social functioning difficulties. Research further examining these personality traits and their underlying facets, with a focus on further clarifying these associations, is encouraged.

Research examining the change in these traits over time has found that the facets underlying extraversion changes differentially over time; in particular, that the social dominance facet increases with age, particularly from adolescence through young adulthood, whereas the facet of social vitality increases in adolescence and then shows a general pattern of decrease as people age (see Roberts et al., 2006 for more specifics); the slight decrease in age was also reported by Specht and colleagues (2011). Agreeableness, on the other hand, shows increases in older age (Roberts et al., 2006; Specht et al., 2011). Both personality traits displayed the strongest rank-order stability around the ages of forty to sixty (Specht et al., 2011).

Both of these personality traits have demonstrated significant increases after clinical interventions, with extraversion displaying the second strongest amount of change, following neuroticism (Roberts et al., 2017). In addition, training focused on building emotional competency (i.e., focusing on emotion identification, understanding, regulation, and utilization) demonstrated improvements in emotion regulation, emotion understanding, and general emotional competency, which was associated with long-term increases in extraversion and

agreeableness (Nelis et al., 2011). As openness provided little predictive utility in the current analyses, the implications associated with this trait will not be discussed.

Conclusion and Summary

In general, the results from the current study provide important information on the roles personality characteristics may play as protective and harmful predictors on their own and in the face of stress in high-achieving and chronically stressed trainees and professionals. These findings emphasize the importance of developing stress-management and coping skills in this population, given the high levels of stress and potentially deleterious effects of stress. Further, these results indicate the influence stress has on the predictive utility of particular personality facets, as some facets appeared muted by stress, whereas others only became significant predictors when combined with stress. Finally, this study identified the strongest predictors of mental health and behavioral functioning, while providing information from the literature on the development and stability of these traits, as well as interventions geared towards improving them. In general, the findings from this study, in association with the extant literature, has important implications not only for intervention related to improving outcomes associated with these personality facets, but for prevention in relation to personality development as well.

Table 1

Internal Consistency of IDAS-II Scales

IDAS-II Scale	Baseline	FU 1	FU 2	FU 3	FU 4	FU 5
Dysphoria	.88	.91	.93	.90	.91	.91
Ill Temper	.79	.90	.90	.86	.90	.86
Panic	.82	.80	.83	.79	.87	.86
Insomnia	.79	.82	.80	.85	.83	.81
Lassitude	.79	.85	.86	.80	.81	.82
Checking	.92	.92	.94	.95	.94	.95

Note. IDAS-II = Expanded Version of the Inventory of Depression and Anxiety Symptoms; FU = Follow-Up

Table 2

FI-FFM Personality Traits and Facets

Personality Trait/Facet	*M*	*SD*
Neuroticism	117.97	29.98
Anxiety	29.15	8.25
Depression	23.88	8.24
Anger Proneness	22.99	7.51
Somatic Complaints	17.70	7.28
Envy	25.20	8.13
Extraversion	139.16	21.11
Positive Temperament	30.48	5.08
Sociability	28.93	6.83
Ascendance	27.30	6.31
Venturesomeness	28.99	5.73
Frankness	24.17	5.26

(table continues)

Personality Trait/Facet	*M*	*SD*
Agreeableness	67.35	9.40
Empathy	19.17	3.17
Trust vs. Cynicism	13.29	3.31
Straightforwardness vs. Manipulativeness	16.47	3.75
Modesty	19.10	3.46
Conscientiousness	161.41	21.58
Self-Discipline	27.04	6.82
Dutifulness	42.97	5.31
Deliberation vs. Impulsivity	33.89	5.49
Achievement Striving	29.20	4.23
Order	29.33	6.61
Openness	57.03	7.06
Intellectance	20.37	2.98
Novel Experiences	20.33	2.87
Nontraditionalism	16.60	3.67
Additional Facets-		
Dependency	21.49	5.43
Emotional Resonance	18.53	3.66
Unusual Experiences	10.08	3.96
Eccentric Beliefs	10.19	4.34

Note. Means and standard deviations for the traits of agreeableness and openness, and their underlying facets, are lower than would be seen in other studies utilizing the FI-FFM for personality assessment, as approximately half of the scale items were provided. The mean and standard deviation for the extraversion facet of frankness may also be lower than expected, as one scale item was not administered to participants.

Table 3

Mental Health and Functioning Outcomes Predicted by Perceived Stress

Outcome		β	*(SE)*
IDAS-II	Dysphoria	.63 to .66	(.03)***
	Ill Temper	.37 to .45	(.03 to .04)***
	Panic	.36 to .40	(.03 to .04)***
	Insomnia	.33 to .37	(.04)***
	Lassitude	.41 to .46	(.03)***
	Checking	.31 to .36	(.03 to .04)***
PROMIS	Cognition	-.43 to -.46	(.03 to .04)***
	Sleep	-.30 to -.34	(.04)***
	Social	.41 to .46	(.03 to .04)***
	Fatigue	.44 to .49	(.03 to .04)***

Note. Results were derived from all HLM analyses for personality traits and facets. * $p < .05$; ** $p < .01$; *** $p < .001$

Table 4

Mental Health Outcomes Predicted by Personality Facets

Trait/Facet		Dysphoria		Ill Temper		Panic		Insomnia		Lassitude		Checking	
		β	*(SE)*	β	*(SE)*	β	*(SE)*	β	*(SE)*	β	*(SE)*	β	*(SE)*
Neuroticism	Neuroticism	**.15**	**(.04)*** **	**.20**	**(.04)*** **	**.18**	**(.04)*** **	**.12**	**(.05)***	**.21**	**(.05)*** **	**.24**	**(.05)*** **
	Anxiety	**.14**	**(.04)*** **	**.16**	**(.04)*** **	**.12**	**(.04)** **	**.10**	**(.05)***	**.17**	**(.05)*** **	**.26**	**(.05)*** **
	Depression	**.19**	**(.03)*** **	**.11**	**(.04)** **	**.17**	**(.04)*** **	**.12**	**(.05)***	**.23**	**(.05)*** **	**.17**	**(.05)*** **
	AngerProne	.02	(.04)	**.20**	**(.04)*** **	**.09**	**(.04)***	.03	(.05)	.06	(.05)	**.11**	**(.05)***
	Somatic	**.16**	**(.03)*** **	**.11**	**(.04)** **	**.20**	**(.04)*** **	**.14**	**(.05)** **	**.25**	**(.04)*** **	**.20**	**(.05)*** **
	Envy	.03	(.04)	**.17**	**(.04)*** **	.08	(.04)	.03	(.05)	.02	(.05)	**.10**	**(.05)***
Extraversion	Extraversion	-.05	(.03)	.02	(.04)	-.06	(.04)	-.01	(.05)	-.03	(.04)	.04	(.05)
	Pos Temp	-.04	(.03)	-.02	(.04)	-.07	(.04)	-.04	(.05)	**-.15**	**(.04)*** **	.03	(.05)
	Sociability	-.07	(.03)	.03	(.04)	-.06	(.04)	-.06	(.05)	-.03	(.04)	.05	(.05)
	Ascendance	-.04	(.03)	.03	(.04)	<-.01	(.04)	.01	(.05)	<-.01	(.04)	.03	(.05)
	Venture	-.02	(.03)	.05	(.04)	-.01	(.04)	.05	(.05)	.01	(.04)	.04	(.05)
	Frankness	.02	(.03)	.01	(.04)	-.05	(.04)	.01	(.05)	.04	(.04)	.02	(.05)
Agreeable	Agreeable	-.02	(.04)	**-.10**	**(.04)** **	**-.11**	**(.04)***	-.07	(.05)	-.03	(.05)	-.02	(.05)
	Empathy	.03	(.03)	-.02	(.04)	-.03	(.04)	.05	(.05)	.08	(.04)	**.10**	**(.05)***
	TrustCyn	-.06	(.04)	-.07	(.04)	**-.10**	**(.04)***	**-.09**	**(.05)***	**-.10**	**(.05)***	**-.11**	**(.05)***
	StraiMan	-.05	(.03)	**-.09**	**(.04)***	**-.08**	**(.04)***	**-.10**	**(.05)***	-.09	(.04)	-.09	(.05)
	Modesty	.02	(.04)	**-.08**	**(.04)***	-.05	(.04)	-.08	(.05)	-.03	(.05)	.07	(.05)

(table continues)

Trait/Facet		Dysphoria		Ill Temper		Panic		Insomnia		Lassitude		Checking	
		β	*(SE)*	β	*(SE)*	β	*(SE)*	β	*(SE)*	β	*(SE)*	β	*(SE)*
Conscient	Conscient	**-.11**	**(.03)****	**-.08**	**(.04)***	**-.10**	**(.04)***	-.02	(.05)	**-.13**	**(.04)****	.02	(.05)
	SelfDis	**-.15**	**(.03)*****	-.05	(.04)	-.04	(.04)	-.01	(.05)	**-.20**	**(.04)*****	.02	(.05)
	Dutifulness	-.06	(.03)	**-.10**	**(.04)****	**-.12**	**(.04)****	.04	(.05)	**-.07**	**(.05)*****	-.01	(.05)
	DelibImpuls	-.06	(.03)	**-.09**	**(.04)***	-.08	(.04)	-.02	(.05)	-.06	(.04)	.02	(.05)
	Achieve	-.01	(.03)	.02	(.04)	-.03	(.04)	.03	(.05)	-.02	(.04)	<-.01	(.05)
	Order	**-.08**	**(.03)***	-.05	(.04)	-.06	(.04)	-.07	(.05)	**-.14**	**(.04)****	.06	(.05)
Openness	Openness	**.09**	**(.03)****	-.06	(.04)	-.03	(.04)	**.10**	**(.05)***	**.09**	**(.04)***	-.04	(.05)
	Intellect	**.08**	**(.03)***	-.01	(.04)	<.01	(.04)	**.11**	**(.05)***	.07	(.04)	-.01	(.05)
	NovelExp	.03	(.03)	<.01	(.04)	<-.01	(.04)	.07	(.05)	.05	(.04)	-.02	(.05)
	Nontrad	**.10**	**(.03)****	-.07	(.04)	<-.01	(.04)	.05	(.05)	**.10**	**(.04)***	-.03	(.05)
Additional	Dependency	.02	(.03)	.06	(.04)	.06	(.04)	-.04	(.05)	.08	(.04)	**.10**	**(.05)***
	EmoRes	.03	(.03)	**.10**	**(.04)****	.03	(.04)	<.01	(.05)	.05	(.04)	**.11**	**(.05)***
	UnusualExp	.05	(.04)	.07	(.04)	**.12**	**(.04)****	.02	(.05)	.04	(.05)	**.10**	**(.05)***
	EccenBelief	-.02	(.03)	**.09**	**(.03)****	**.11**	**(.04)****	.03	(.05)	-.05	(.04)	**.11**	**(.05)***

Note. AngerProne = Anger Proneness FIFFM facet; Somatic = Somatic Complaints FIFFM facet; Pos Temp = Positive Temperament FIFFM facet; Venture = Venturesomeness FIFFM facet; Agreeable = Agreeableness FIFFM trait; TrustCyn = Trust vs. Cynicism FIFFM facet; StraiMan = Straightforwardness vs. Manipulativeness FIFFM facet; Conscient = Conscientiousness FIFFM Trait; SelfDis = Self-Discipline FIFFM facet; DelibImpuls = Deliberation vs. Impulsiveness FIFFM facet; Achieve = Achievement Striving FIFFM facet; Intellect = Intellectance FIFFM facet; NovelExp = Novel Experiences FIFFM facet; Nontrad = Nontraditionalism FIFFM facet; Additional = Additional Facets not associated with Higher-Order Traits; EmoRes = Emotional Resonance FIFFM facet; UnusualExp = Unusual Experiences FIFFM facet; EccenBelief = Eccentric Beliefs FIFFM facet. * $p < .05$; ** $p < .01$; *** $p < .001$. All significant results are bolded

Table 5

Cognitive and Behavioral Outcomes Predicted by Personality Facets

Trait/Facet		Cognition		Sleep		Social		Fatigue	
		β	*(SE)*	β	*(SE)*	β	*(SE)*	β	*(SE)*
Neuroticism	Neuroticism	-.07	(.05)	-.10	(.05)	**.10**	**(.05)***	**.10**	**(.05)***
	Anxiety	-.06	(.05)	**-.13**	**(.05)***	.08	(.05)	.07	(.04)
	Depression	-.07	(.05)	-.10	(.05)	.07	(.05)	**.13**	**(.04)****
	AngerProne	<-.01	(.05)	-.01	(.05)	.01	(.05)	.01	(.04)
	Somatic	**-.14**	**(.05)****	**-.12**	**(.05)***	**.15**	**(.05)****	**.17**	**(.04)*****
	Envy	.04	(.05)	.01	(.05)	<.01	(.05)	-.04	(.04)
Extraversion	Extraversion	**.10**	**(.04)***	.03	(.05)	<.01	(.05)	-.04	(.04)
	Pos Temp	.09	(.05)	.04	(.05)	-.01	(.05)	**-.10**	**(.03)***
	Sociability	.05	(.04)	.07	(.05)	-.06	(.05)	-.07	(.03)
	Ascendance	**.12**	**(.04)****	<.01	(.05)	<-.01	(.05)	-.04	(.03)
	Venture	**.11**	**(.04)***	-.04	(.05)	-.01	(.05)	-.02	(.03)
	Frankness	-.03	(.04)	.05	(.05)	**.09**	**(.04)***	.05	(.03)
Agreeable	Agreeable	-.08	(.05)	.06	(.05)	-.01	(.05)	.01	(.04)
	Empathy	-.06	(.04)	-.05	(.05)	**.11**	**(.05)***	.07	(.04)
	TrustCyn	-.01	(.05)	**.10**	**(.05)***	**-.15**	**(.05)****	-.05	(.04)
	StraiMan	-.06	(.05)	.08	(.05)	-.08	(.05)	-.04	(.04)
	Modesty	-.07	(.05)	.08	(.05)	<-.01	(.05)	-.01	(.04)

(table continues)

Trait/Facet		Cognition		Sleep		Social		Fatigue	
		β	*(SE)*	β	*(SE)*	β	*(SE)*	β	*(SE)*
Conscient	Conscient	**.12**	**(.05)****	-.02	(.05)	.05	(.05)	-.05	(.04)
	SelfDis	**.16**	**(.04)*****	<.01	(.05)	-.09	(.05)	**-.13**	**(.04)****
	Dutifulness	.06	(.05)	-.06	(.05)	.09	(.05)	.02	(.04)
	DelibImpuls	.06	(.04)	<-.01	(.05)	<-.01	(.05)	-.03	(.04)
	Achieve	.07	(.05)	-.04	(.05)	**.10**	**(.05)***	.01	(.04)
	Order	**.10**	**(.05)***	.04	(.05)	.03	(.05)	-.06	(.04)
Openness	Openness	-.03	(.04)	**-.14**	**(.05)****	**.09**	**(.04)***	**.08**	**(.04)***
	Intellect	-.03	(.05)	**-.11**	**(.05)***	.06	(.05)	**.09**	**(.04)***
	NovelExp	<.01	(.05)	-.08	(.05)	.03	(.05)	-.02	(.04)
	Nontrad	-.05	(.04)	**-.10**	**(.05)***	**.09**	**(.05)***	**.10**	**(.04)***
Additional	Dependency	-.07	(.05)	.06	(.05)	<.01	(.05)	.03	(.04)
	EmoRes	-.02	(.05)	.01	(.05)	.06	(.05)	.03	(.04)
	UnusualExp	-.03	(.05)	.02	(.05)	-.06	(.05)	-.07	(.04)
	EccenBelief	.02	(.05)	-.01	(.05)	-.06	(.05)	-.04	(.04)

Note. AngerProne = Anger Proneness FIFFM facet; Somatic = Somatic Complaints FIFFM facet; Pos Temp = Positive Temperament FIFFM facet; Venture = Venturesomeness FIFFM facet; Agreeable = Agreeableness FIFFM trait; TrustCyn = Trust vs. Cynicism FIFFM facet; StraiMan = Straightforwardness vs. Manipulativeness FIFFM facet; Conscient = Conscientiousness FIFFM Trait; SelfDis = Self-Discipline FIFFM facet; DelibImpuls = Deliberation vs. Impulsiveness FIFFM facet; Achieve = Achievement Striving FIFFM facet; Intellect = Intellectance FIFFM facet; NovelExp = Novel Experiences FIFFM facet; Nontrad = Nontraditionalism FIFFM facet; Additional = Additional Facets not associated with Higher-Order Traits; EmoRes = Emotional Resonance FIFFM facet; UnusualExp = Unusual Experiences FIFFM facet; EccenBelief = Eccentric Beliefs FIFFM facet; Cognition = PROMIS Applied Cognition Abilities; Sleep = PROMIS Sleep Disturbance; Social = PROMIS Ability to Participate in Social Roles and Activities; Fatigue = PROMIS Fatigue. * $p < .05$; ** $p < .01$; *** $p < .001$. All significant results are bolded

Table 6

Mental Health Outcomes Predicted by Personality Facets x Stress

	Variables	Dysphoria		Ill Temper		Panic		Insomnia		Lassitude		Checking	
		β	*(SE)*	β	*(SE)*	β	*(SE)*	β	*(SE)*	β	*(SE)*	β	*(SE)*
Neuroticism	Neuroticism*PSS	**.16**	**(.03)*** **	**.20**	**(.03)*** **	**.15**	**(.04)*** **	.05	(.04)	**.06**	**(.03)***	**.12**	**(.03)*** **
	Anxiety*PSS	**.13**	**(.03)*** **	**.14**	**(.03)*** **	**.10**	**(.04)** **	.04	(.04)	.03	(.03)	**.12**	**(.03)*** **
	Depression*PSS	**.17**	**(.03)*** **	**.18**	**(.03)*** **	**.14**	**(.04)*** **	.06	(.04)	**.08**	**(.03)** **	**.10**	**(.03)** **
	AngerProne*PSS	**.10**	**(.03)*** **	**.17**	**(.03)*** **	**.10**	**(.04)***	.01	(.04)	.02	(.03)	.06	(.03)
	Somatic*PSS	**.11**	**(.03)*** **	**.13**	**(.03)*** **	**.09**	**(.04)***	.05	(.04)	.04	(.03)	**.09**	**(.03)** **
	Envy*PSS	**.09**	**(.03)** **	**.17**	**(.03)*** **	**.09**	**(.04)***	-.01	(.04)	.02	(.03)	.05	(.03)
Extraversion	Extraversion*PSS	-.03	(.03)	.03	(.03)	-.01	(.04)	<-.01	(.04)	-.02	(.03)	**.07**	**(.03)***
	Pos Temp*PSS	**-.06**	**(.03)***	**-.07**	**(.03)***	-.05	(.04)	<.01	(.04)	-.04	(.03)	.06	(.03)
	Sociability*PSS	-.04	(.03)	.01	(.04)	<.01	(.04)	-.03	(.04)	-.02	(.03)	**.07**	**(.03)***
	Ascendance*PSS	-.03	(.03)	.04	(.03)	.02	(.04)	.01	(.04)	<-.01	(.03)	.03	(.03)
	Venture*PSS	-.02	(.03)	.05	(.03)	.01	(.04)	-.03	(.04)	-.04	(.03)	.04	(.03)
	Frankness*PSS	.04	(.03)	.03	(.03)	-.01	(.04)	.03	(.04)	.04	(.03)	.05	(.03)
Agreeable	Agreeable*PSS	-.05	(.03)	**-.09**	**(.03)** **	**-.09**	**(.04)***	<.01	(.04)	-.01	(.03)	.01	(.03)
	Empathy*PSS	-.01	(.03)	-.02	(.03)	-.04	(.04)	.04	(.04)	<.01	(.03)	.05	(.03)
	TrustCyn*PSS	**-.07**	**(.03)***	**-.09**	**(.03)** **	**-.08**	**(.04)***	-.06	(.04)	-.05	(.03)	-.04	(.03)
	StraiMan*PSS	**-.09**	**(.03)** **	**-.08**	**(.03)** **	**-.10**	**(.04)** **	-.05	(.04)	-.04	(.03)	-.04	(.03)
	Modesty*PSS	.01	(.03)	**-.07**	**(.03)***	-.06	(.03)	.06	(.04)	.01	(.03)	.04	(.03)

(table continues)

	Variables	Dysphoria		Ill Temper		Panic		Insomnia		Lassitude		Checking	
		β	*(SE)*	β	*(SE)*	β	*(SE)*	β	*(SE)*	β	*(SE)*	β	*(SE)*
Conscient	Conscient*PSS	**-.10**	**(.03)*** **	**-.14**	**(.03)*** **	**-.11**	**(.04)** **	.01	(.04)	-.04	(.03)	.01	(.03)
	SelfDis*PSS	**-.14**	**(.03)*** **	**-.12**	**(.03)** **	-.06	(.04)	-.01	(.04)	-.06	(.03)	-.02	(.03)
	Dutifulness*PSS	**-.09**	**(.03)** **	**-.15**	**(.04)*** **	**-.11**	**(.04)** **	.01	(.04)	-.04	(.03)	.01	(.03)
	DelibImpuls*PSS	-.03	(.03)	**-.10**	**(.03)** **	**-.08**	**(.04)***	.01	(.04)	-.01	(.03)	<.01	(.03)
	Achieve*PSS	-.05	(.03)	-.03	(.03)	-.02	(.04)	.01	(.04)	-.02	(.03)	.03	(.03)
	Order*PSS	**-.07**	**(.03)***	**-.10**	**(.03)** **	**-.08**	**(.04)***	.02	(.04)	-.01	(.03)	.05	(.03)
Openness	Openness*PSS	.02	(.03)	-.02	(.03)	.04	(.04)	<.01	(.04)	.02	(.03)	.04	(.03)
	Intellect*PSS	-.01	(.03)	-.01	(.03)	-.01	(.04)	.01	(.04)	.04	(.03)	.03	(.03)
	NovelExp*PSS	<.01	(.03)	.01	(.03)	.03	(.04)	-.01	(.04)	<-.01	(.03)	.03	(.03)
	Nontrad*PSS	.01	(.01)	-.03	(.03)	.04	(.04)	<.01	(.04)	.01	(.03)	.02	(.03)
Additional	Dependency*PSS	.04	(.03)	**.07**	**(.03)***	**.09**	**(.04)***	<-.01	(.04)	<.01	(.03)	.05	(.03)
	EmoRes*PSS	.04	(.03)	**.08**	**(.03)***	.02	(.04)	.06	(.04)	.04	(.03)	**.08**	**(.03)** **
	UnusualExp*PSS	**.09**	**(.03)** **	**.12**	**(.03)*** **	**.15**	**(.04)*** **	**.08**	**(.04)***	.04	(.03)	**.13**	**(.03)*** **
	EccenBelief*PSS	-.01	(.03)	**.10**	**(.04)** **	.07	(.04)	**.09**	**(.04)***	.01	(.03)	.05	(.03)

Note. AngerProne = Anger Proneness FIFFM facet; Somatic = Somatic Complaints FIFFM facet; Pos Temp = Positive Temperament FIFFM facet; Venture = Venturesomeness FIFFM facet; Agreeable = Agreeableness FIFFM trait; TrustCyn = Trust vs. Cynicism FIFFM facet; StraiMan = Straightforwardness vs. Manipulativeness FIFFM facet; Conscient = Conscientiousness FIFFM Trait; SelfDis = Self-Discipline FIFFM facet; DelibImpuls = Deliberation vs. Impulsiveness FIFFM facet; Achieve = Achievement Striving FIFFM facet; Intellect = Intellectance FIFFM facet; NovelExp = Novel Experiences FIFFM facet; Nontrad = Nontraditionalism FIFFM facet; Additional = Additional Facets not associated with Higher-Order Traits; EmoRes = Emotional Resonance FIFFM facet; UnusualExp = Unusual Experiences FIFFM facet; EccenBelief = Eccentric Beliefs FIFFM facet. * $p < .05$; ** $p < .01$; *** $p < .001$. All significant results are bolded.

Table 7

Cognitive and Behavioral Outcomes Predicted by Personality Facets x Stress

	Variables	Cognition		Sleep		Social		Fatigue	
		β	*(SE)*	β	*(SE)*	β	*(SE)*	β	*(SE)*
Neuroticism	Neuroticism*PSS	**-.07**	**(.03)***	-.03	(.04)	.02	(.04)	<.01	(.03)
	Anxiety*PSS	-.01	(.03)	-.02	(.04)	.00	(.04)	-.02	(.03)
	Depression*PSS	-.05	(.03)	-.03	(.04)	.02	(.04)	.04	(.03)
	AngerProne*PSS	-.04	(.04)	-.02	(.04)	.01	(.04)	-.01	(.03)
	Somatic*PSS	**-.09**	**(.03)****	-.05	(.04)	.05	(.04)	-.02	(.03)
	Envy*PSS	-.05	(.03)	.03	(.04)	-.02	(.03)	-.03	(.03)
Extraversion	Extraversion*PSS	-.01	(.03)	<.01	(.04)	.03	(.03)	-.01	(.03)
	Pos Temp*PSS	.02	(.03)	-.02	(.04)	<.01	(.03)	.02	(.04)
	Sociability*PSS	-.02	(.03)	.01	(.04)	-.02	(.04)	-.04	(.04)
	Ascendance*PSS	<.01	(.03)	<.01	(.04)	.06	(.03)	<-.01	(.04)
	Venture*PSS	.03	(.03)	.05	(.04)	-.03	(.03)	-.04	(.04)
	Frankness*PSS	-.03	(.03)	-.04	(.04)	**.10**	**(.03)****	.02	(.04)
Agreeable	Agreeable*PSS	<.01	(.03)	-.03	(.04)	<.01	(.03)	<-.01	(.03)
	Empathy*PSS	.01	(.03)	-.02	(.04)	.03	(.03)	.01	(.03)
	TrustCyn*PSS	.01	(.03)	.01	(.04)	-.02	(.03)	-.02	(.03)
	StraiMan*PSS	<-.01	(.03)	<.01	(.04)	-.04	(.04)	-.05	(.03)
	Modesty*PSS	.02	(.03)	-.04	(.04)	.03	(.04)	.01	(.03)

(table continues)

Variables		Cognition		Sleep		Social		Fatigue	
		β	*(SE)*	β	*(SE)*	β	*(SE)*	β	*(SE)*
Conscient	Conscient*PSS	.05	(.03)	.02	(.04)	-.02	(.03)	<-.01	(.03)
	SelfDis*PSS	**.07**	**(.03)***	.02	(.04)	-.07	(.03)	<-.01	(.03)
	Dutifulness*PSS	**.10**	**(.03)****	.04	(.04)	**-.08**	**(.04)***	-.03	(.04)
	DelibImpuls*PSS	-.01	(.03)	.04	(.04)	<.01	(.04)	-.01	(.03)
	Achieve*PSS	-.01	(.03)	-.01	(.04)	.06	(.03)	.03	(.03)
	Order*PSS	.03	(.03)	-.01	(.04)	<.01	(.03)	-.02	(.03)
Openness	Openness*PSS	<-.01	(.04)	-.02	(.04)	.03	(.04)	.01	(.03)
	Intellect*PSS	<.01	(.03)	-.03	(.04)	.02	(.03)	.02	(.03)
	NovelExp*PSS	.02	(.04)	.01	(.04)	<-.01	(.04)	-.02	(.03)
	Nontrad*PSS	-.03	(.04)	-.03	(.04)	.06	(.04)	.02	(.03)
Additional	Dependency*PSS	-.02	(.03)	-.01	(.04)	-.03	(.04)	-.03	(.03)
	EmoRes*PSS	-.01	(.03)	-.06	(.04)	.03	(.03)	.02	(.03)
	UnusualExp*PSS	-.03	(.03)	-.07	(.04)	.04	(.04)	**.07**	**(.03)***
	EccenBelief*PSS	.04	(.04)	-.04	(.04)	-.06	(.04)	-.01	(.04)

Note. AngerProne = Anger Proneness FIFFM facet; Somatic = Somatic Complaints FIFFM facet; Pos Temp = Positive Temperament FIFFM facet; Venture = Venturesomeness FIFFM facet; Agreeable = Agreeableness FIFFM trait; TrustCyn = Trust vs. Cynicism FIFFM facet; StraiMan = Straightforwardness vs. Manipulativeness FIFFM facet; Conscient = Conscientiousness FIFFM Trait; SelfDis = Self-Discipline FIFFM facet; DelibImpuls = Deliberation vs. Impulsiveness FIFFM facet; Achieve = Achievement Striving FIFFM facet; Intellect = Intellectance FIFFM facet; NovelExp = Novel Experiences FIFFM facet; Nontrad = Nontraditionalism FIFFM facet; Additional = Additional Facets not associated with Higher-Order Traits; EmoRes = Emotional Resonance FIFFM facet; UnusualExp = Unusual Experiences FIFFM facet; EccenBelief = Eccentric Beliefs FIFFM facet; Cognition = PROMIS Applied Cognition Abilities; Sleep = PROMIS Sleep Disturbance; Social = PROMIS Ability to Participate in Social Roles and Activities; Fatigue = PROMIS Fatigue. * $p < .05$; ** $p < .01$; *** $p < .001$. All significant results are bolded.

APPENDIX

SUPPLEMENTARY TABLES

Table A.1

Personality Research Informing Current Hypotheses

Reference	Population	N	Primary Features	Outcome(s)	Results
			Studies Investigating Neuroticism Facets		
Goldstein et al. (2017)	Community sample of adolescent girls	550	Personality assessed through the BFI and FI-FFM; longitudinal (18 months); bivariate and multivariate analyses	First onset of depression and anxiety disorders	Bivariate analyses: (*OD*) **Depressivity** predicted first onset of depression (2.05)***, GAD (1.63)***, specific phobia (1.36)* **Anxiousness** predicted first onset of depression (1.77)***, GAD (2.37)***, SP (1.74)***, specific phobia (1.41)*** **Anger** predicted first onset of depression (1.78)***, specific phobia (1.47)** Multivariate analyses: **Depressivity** uniquely predicted first onset of depression (1.56)* **Anxiousness** uniquely predicted first onset of GAD (2.83)**, SP (2.37)**
Naragon-Gainey & Watson (2014)	Community sample of individuals aged 18-85	398-598	Use of consensually defined facets; multi-inventory facet-level structural analysis; personality assessed through the 16PF, HPI, JPI-R, MPQ, NEO PI-R, 6PFQ, and PANAS-X; longitudinal (5 years); depression facet held constant in hierarchical regression analyses	Onset and change of depression	Bivariate correlations: (*r*) **Depression** correlated with time 2 depression (56)** **Anxiety** correlated with time 2 depression (45)** **Anger** correlated with time 2 depression (.46)** Hierarchical multiple regression analyses: (β) **Anger** uniquely predicted time 2 depression (.16)**
Walton et al. (2017)	Undergraduate psychology students and outpatients ages 17-64	240	Personality assessed through NEO PI-R; confirmatory factor analysis	Internalizing disorders (fear-based and distress-based) and externalizing disorders	Zero-order correlations: (*r*) **Depression** related to SUD (.28)*, AAD (.17)*, distress disorders (.45)*, MDD (.53)*, GAD (.34)*, PTSD (.21)*, fear disorders (.41)*, OCD (.17)*, PD (.34)*, Ag (.18)*, SP (.37)* **Anxiety** related to SUD (.20)*, distress disorders (.51)*, MDD (.37)*, GAD (.53)*, PTSD (.18)*, fear disorders (.47)*, OCD (.14)*, PD (.39)*, Ag (.32)*, SP (.35)* **Angry hostility** related to SUD (.16)*, distress disorders (.26)*, MDD (.26)*, GAD (.22)*, fear disorders (.25)*, PD (.22)*, Ag (.21)* Self-consciousness related to SUD (.20)*, AAD (.14)*, distress disorders (.31)*, MDD (.35)*, GAD (.24)*, fear disorders (.31)*, PD (.24)*, SP (.49)* Impulsiveness related to SUD (.22)*, AAD (.15)*, DAD (.21)*, distress disorders (.19)*, MDD (.26)*, fear disorders (.20)*, PD (.22)*, Ag (.15)* Vulnerability related to SUD (.19)*, distress disorders (.33)*, MDD (.42)*, GAD (.26)*, fear disorders (.31)*, OCD (.15)*, PD (.25)*, Ag (.14)*, SP (.32)* Regression analyses: (β) **Depression** predicted distress disorders (.25)*, fear disorders (.20)* **Anxiety** predicted distress disorders (.39)*, fear disorders (.33)
Anglim & Grant (2016)	Undergraduate psychology students from	337	Personality assessed through IPIP; exploratory factor analysis	Psychological and subjective well-being	Semi-partial correlations (controlling for Big 5 domains): **Depression** negatively correlated with satisfaction with life (-.28)***, positive relations (-.20)***, emotional mastery (-.14)***, personal growth (-.13)***, purpose in life (-.24)***, self-acceptance (-

Reference	Population	N	Primary Features	Outcome(s)	Results
	Australian universities				.37)*** **Anger** positively correlated with autonomy (.17)***, self-acceptance (.13)*** Self-consciousness positively correlated with satisfaction with life (.14)***; negatively correlated with autonomy (-.20)*** Immoderation positively correlated with purpose in life (.12)***
Quevedo & Abella (2011)	University students and community members in Spain	554	Personality assessed through the NEO-PI-R; correlational analyses and hierarchical multiple regression analyses	Subjective well-being	Correlational analyses: (*r*) **Depression** positively correlated with negative affect (.34)***; negatively correlated with happiness (-.48)***, life satisfaction (-.40)***, positive affect (-.31)*** **Anxiety** positively correlated with negative affect (.28)***; negatively correlated with happiness (-.25)***, life satisfaction (-.19)***, positive affect (-.20)*** **Hostility** positively correlated with negative affect (.34)***; negatively correlated with happiness (-.20)***, life satisfaction (-.19)***, positive affect (-.13)** Self-consciousness positively correlated with negative affect (.17)***; negatively correlated with happiness (-.28)***, life satisfaction (-.23)***, positive affect (-.27)*** Impulsiveness positively correlated with negative affect (.15)***; negatively correlated with life satisfaction (-.10)** Vulnerability positively correlated with negative affect (.30)***; negatively correlated with happiness (-.35)***, life satisfaction (-.32)***, positive affect (-.36)*** Stepwise regression analyses (full model): (β) **Depression** negatively predicted happiness (-.23)***, life satisfaction (-.21)*** Impulsiveness positively predicted positive affect (.17)** Vulnerability positively predicted negative affect (.16)**; negatively predicted positive affect (-.39)***
Schimmack et al. (2004)	1) University students; 2) university students; 3) participants from the Riverside Accuracy Project; 4) university students	1) 136; 2) 124; 3) 146; 4) 344	Examined association between neuroticism, extraversion, and life satisfaction in four studies; personality assessed through NEO-PI-R (studies 1 and study 3), IPIP (study 2), BFI (study 4); included informant ratings	Life satisfaction	Study 1) Correlational analyses: (*r*) **Depression** negatively correlated with life satisfaction at all three times (-.52)*, (-.52)*, (-.49)* **Anxiety** negatively correlated with life satisfaction at all three times (-.22)*, (-.25)*, (-.21)* **Angry/hostility** negatively correlated with life satisfaction at all three times (-.34)*, (-.40)*, (-.35)* Self-consciousness negatively correlated with life satisfaction at all three times (-.35)*, -.38)*, (-.37)* Impulsivity negatively correlated with life satisfaction at time 1 (-.19)* and time 2 (-.23)* Vulnerability negatively correlated with life satisfaction at all three times (-.31)*, (-.33)*, (-.30)* Hierarchical regression analyses: (ΔR^2) **Depression,** with positive emotions, predicted life satisfaction above and beyond Neuroticism and Extraversion at all three times (.08)*, (.09)*, (.07)* Study 2) Correlational analyses: (*r*) **Depression** negatively correlated with life satisfaction at both times (-.57)*, (-.55)* **Anxiety** negatively correlated with life satisfaction at both times (-.40)*, (-.31)*

Reference	Population	N	Primary Features	Outcome(s)	Results
					Anger negatively correlated with life satisfaction at both times (-.38)*, (-.35)* Self-consciousness negatively correlated with life satisfaction at both times (-.35)*, (-.32)* Immoderation negatively correlated with life satisfaction at time 1 (-.23)* Vulnerability negatively correlated with life satisfaction at both times (-.38)*, (-.28)* Hierarchical regression analyses: (ΔR^2) **Depression,** with cheerfulness, predicted life satisfaction above and beyond Neuroticism and Extraversion at both times (.11)*, (.15)* Study 3) Correlational analyses: **Depression**, as rated by participant (-.52)* and peers (-.28)*, negatively correlated with life satisfaction **Anxiety**, as rated by participant (-.33)* and parents (-.23)*, negatively correlated with life satisfaction **Anger/hostility**, as rated by participant (-.31)*, negatively correlated with life satisfaction Self-consciousness, as rated by participant (-.40)*, peers (-.22)*, and parents (-.28)*, negatively correlated with life satisfaction Vulnerability, as rated by participant (-.47)*, peers (-.18)*, and parents (-.22)*, negatively correlated with life satisfaction; Hierarchical regression analyses: (ΔR^2) **Depression,** with positive emotions, predicted life satisfaction above and beyond Neuroticism and Extraversion when rated by participants (.04)* and peers (.05)*. However, Neuroticism and Extraversion predicted life satisfaction above and beyond positive emotions and depression facets when rated by participants (.04)*. Results from parent ratings did not indicate any significant unique variance. Study 4) Correlational analyses: (*r*) **Depression** negatively correlated with life satisfaction (-.39)* Hierarchical regression analyses: (ΔR^2) **Depression,** with positive emotions, predicted life satisfaction above and beyond Neuroticism and Extraversion (.08)*.
Siegler & Brummett (2000)	Middle aged adults (college alumni)	2,379	Personality assessed through NEO-PI-R	Well-being	Correlational analyses: (*r*) **Depression** negatively correlated with self-acceptance (-.56)***, environmental mastery (-.19)***, positive relations with others (-.20)***, purpose in life (-.43)*** **Anxiety** negatively correlated with self-acceptance (-.43)***, environmental mastery (-.14)***, positive relations with others (-.15)***, purpose in life (-.35)*** **Hostility** negatively correlated with self-acceptance (-.32)***, environmental mastery (-.09)***, positive relations with others (-.13)***, purpose in life (-.29)*** Self-consciousness negatively correlated with self-acceptance (-.47)***, environmental mastery (-.13)***, positive relations with others (-.17)***, purpose in life (-.26)***

Reference	Population	N	Primary Features	Outcome(s)	Results
					Impulsiveness negatively correlated with self-acceptance (-.23)***, environmental mastery (-.09)***, purpose in life (-.12)*** Vulnerability negatively correlated with self-acceptance (-.49)***, environmental mastery (-.18)***, positive relations with others (-.17)***, purpose in life (-.26)***
Bipp et al. (2008)	Undergraduate university students	160	Personality assessed through NEO-PI-R; measures administered over 2-3 weeks	Achievement motivation, as assessed through goal orientations	Correlational analyses: (*r*) **Depression** positively correlated with performance-approach (.25)**, performance-avoidance (.43)** **Anxiety** positively correlated with performance-approach (.17)*, performance-avoidance (.32)** **Angry hostility** positively correlated with performance-approach (.19)*, performance-avoidance (.26)** Self-consciousness positively correlated with performance-approach (.18)*, performance-avoidance (.51)**, work avoidance (.19)* Impulsiveness positively correlated with performance-approach (.19)* Vulnerability positively correlated with performance-approach (.20)**, performance-avoidance (.34)**
Ziegler et al. (2014)	Apprentices in laboratory professions, skilled production workers, metal and electrical technicians, and skilled commercial workers	501	Personality assessed through NEO-PI-R; supervisor ratings gathered over 1 year	Job training performance	Test-criterion correlations (controlling for age and gender): **Depression** negatively correlated with job training performance in skilled commercial workers (-.20)* Vulnerability negatively correlated with job training performance in metal/electronic technicians (-.21)* Multiple regression analyses: (unstandardized coefficients) **Depression** negatively predicted job training performance in skilled commercial workers (-.10)* **Angry hostility** negatively predicted job training performance in laboratory professionals (-.05)* Self-consciousness positively predicted job training performance in skilled production workers (.04)* and metal/electronic technicians (.04)* Impulsiveness positively predicted job training performance in metal/electronic technicians (.05)* Vulnerability negatively predicted job training performance in skilled production workers (-.05)* Multiple regression analyses controlling for general mental ability: (unstandardized coefficients) **Depression** negatively predicted job training performance for skilled commercial workers (-.10)* **Angry hostility** negatively predicted job training performance for laboratory professionals (-.05)* Impulsiveness positively predicted job training performance for metal/electronic technicians (.05)* Vulnerability negatively predicted job training performance for skilled production workers (-.05)* and metal/electronic technicians (-.08)*
Studies Investigating Extraversion Facets					
Goldstein et al. (2017)	Community sample of adolescent girls	550	Personality assessed through the BFI and FI-FFM; longitudinal (18 months); bivariate and multivariate analyses	First onset of depression and anxiety disorders	Bivariate analyses: (OD) **Positive temperament** negatively predicted first onset of depression (.67)** **Sociability** negatively predicted first onset of depression (OD = .64)**, social phobia (.70)* Ascendance negatively predicted first onset of social phobia (.67)* Venturesomeness negatively predicted first onset of social phobia (.66)*

Reference	Population	N	Primary Features	Outcome(s)	Results
Naragon-Gainey & Watson (2014)	Community sample of individuals aged 18-85	398-598	Use of consensually defined facets; multi-inventory facet-level structural analysis; personality assessed through the 16PF, HPI, JPI-R, MPQ, NEO PI-R, 6PFQ, and PANAS-X; longitudinal (5 years); depression facet held constant in hierarchical regression analyses	Onset and change in depression	Bivariate correlations: (*r*) **Positive emotionality** negatively correlated with time 2 depression (-.39)** Ascendance negatively correlated with time 2 depression (- .17)** Hierarchical multiple regression analyses: (β) **Positive emotionality** uniquely negatively predicted depression at time 2 (-.13)**
Spinhoven et al. (2014)	Adults aged 18-65 in the Netherlands (healthy controls, individuals with prior or current anxiety/depression)	2942	Personality assessed through NEO-FFI; longitudinal (4 years); SEM	Depression and social anxiety	SEM results: **Positive affectivity** negatively associated with depression (-.59), social anxiety (-.38) **Sociability** negatively associated with social anxiety (-.36)
Stanton & Watson (2015)	Online community sample and undergraduate student sample	451 community; 436 students	Personality assessed through PANAS-X, MACL, DES, IPIP, TAI; factor analysis identifying two-factor and four-factor structures of positive emotionality	Psychopathology	Correlational analyses: (*r*) (correlations above .25 reported) **Joviality** positively correlated with well-being in community (.80) and student samples (.70), euphoria in community (.59) and student samples (.33); negatively correlated with dysphoria in community (-.38) and student (-.42) samples, negatively correlated with social anxiety in student sample (-.38) In students, **joviality** positively correlated with social vitality (.25); negatively correlated with panic (-.30), appetite loss (-.29), lassitude (-.29), traumatic intrusions (-.27), SPQ social anxiety (-.43), social anhedonia (-.42), PSRS social (-.38) (community sample not administered these items) Experience seeking positively correlated with well-being in community (.53) and student samples (.25), euphoria in community (.59) and student samples (.35), mania in community sample (.40) In students, experience seeking positively correlated with social vitality (.56), AUDIT (.27); negatively correlated with SPQ social anxiety (-.26), PSRS social (-.33) (community members not administered these items) Regression analyses: (β) **Joviality** positively predicted well-being in community (.74)* and student samples (.69)*, euphoria in community (.37)* and student (.24)* samples; negatively predicted dysphoria in community (-.58)* and student samples (-.48)*, social anxiety in community (-.25)* and student samples (-.39)*, mania in community (-.13)* and student (-.19)* samples In students, **joviality** positively predicted excitement (.10)*; negatively predicted panic (-.39)*, lassitude (-.36)*, appetite loss (-.34)*, traumatic intrusions (-.31)*, insomnia (-.31)*, ill temper (-.28)*, claustrophobia (-.25)*, traumatic avoidance (-.23)*, cleaning (-.17)*, social anhedonia (-.48)*, SPQ social anxiety (-.39)*, eccentricity/oddity (-.31)*, SMAST (-.30)*, PSRS Social (-.30)*, mistrust (-.25)*, mood volatility (-.29)*, drug use (-.27)* (community sample not administered these

Reference	Population	N	Primary Features	Outcome(s)	Results
					items) Experience seeking positively predicted well-being in community (.11)* sample, dysphoria in community (.35)* and student samples (.17)*, social anxiety in community sample (.14)*, mania in community (.47)* and student samples (.20)*, euphoria in community (.37)* and student samples (.27)* In students, experience seeking positively predicted panic (.26)*, lassitude (.20)*, appetite loss (.15)*, traumatic intrusions (.13)*, insomnia (.19)*, ill temper (.26)*, claustrophobia (.15)*, social anhedonia (.16)*, eccentricity/oddity (.20)*, SMAST (.25)*, social vitality (.54)*, AUDIT (.36)*, mood volatility (.31)*, drug use (.30)*, excitement (.20)*, unusual beliefs (.18)*; negatively predicted SPQ social anxiety (-.13)*, PSRS social (-.23)* (community sample not administered these items)
Walton et al. (2017)	Undergraduate psychology students and outpatients ages 17-64	240	Personality assessed through NEO PI-R; confirmatory factor analysis	Internalizing disorders (fear-based and distress-based) and externalizing disorders	Zero-order correlations: (*r*) **Positive emotions** negatively related to distress disorders (-.14)*, MDD (-.21)*, fear disorders (-.14)*, SP (-.29)* **Gregariousness** negatively related to SUD (-.14)*, distress disorders (-.25)*, MDD (-.26)*, GAD (-.14)*, fear disorders (-.26)*, PD (-.19)*, Ag (-.20)*, SP (-.31)* Warmth negatively related to SUD (-.15)*, DAD (-.21)*, SP (-.28)* Assertiveness negatively related to SP (-.36)* Activity negatively related to SP (-.25)* Excitement-seeking positively related to AAD (.14)* Regression analyses: (β) **Gregariousness** negatively predicted distress disorders (-.28)*, fear disorders (-.30)* Excitement-seeking predicted SUD (.24)*
Watson et al. (2015)	Community sample of adults ages 18-77, approximately half outpatients	438	Creation of latent factors from 3 personality inventories (NEO PI-3, FI-FFM, HEXACO-PI-R); factor analysis	Internalizing disorders, psychoticism, externalizing disorders	Correlational analyses: (*r*) (Correlations above .30 reported) **Positive emotionality** negatively related to internalizing = PHQ-9 (-.51), dysphoria (-.52), lassitude (-.44), suicidality (-.34), appetite loss (-.30), social anxiety composite (-.53), GAD (-.44), panic composite (-.42), PTSD composite (-.34); psychoticism = social aloofness (-.52), suspiciousness (-.45), restricted affectivity (-.30) **Sociability** negatively related to internalizing = PHQ-9 (-.33), dysphoria (-.33), social anxiety composite (-.51), panic composite (-.31); psychoticism = social aloofness (-.63), suspiciousness (-.37), restricted affectivity (-.34) Assertiveness negatively related to internalizing = social anxiety composite (-.53); psychoticism = social aloofness (-.31); positively related to externalizing = antagonism (.32) Experience seeking positively related to psychoticism = euphoria (.35); externalizing = antagonism (.45), disinhibition (.40) Polyserial correlations: **Positive emotionality** negatively related to internalizing = dysthymic disorder (-.45), MDD (-.43), social anxiety disorder (-.43), GAD (-.34), panic disorder (-.30), OCD (-.32); psychoticism = mood disorder-psychotic (-.47)

Reference	Population	N	Primary Features	Outcome(s)	Results
					Sociability negatively related to internalizing = dysthymic disorder (-.44), MDD (-.31), social anxiety disorder (-.45), PTSD (-.31), agoraphobia (-.43); psychoticism = mood disorder-psychotic (-.44) Assertiveness negatively related to internalizing = social anxiety disorder (-.46) Experience seeking negatively related to internalizing = dysthymic disorder (-.30), agoraphobia (-.37); positively related to externalizing = AUD (.35), SUD (.30) Multiple regression analyses (series 1): (β) **Positive emotionality** negatively predicted internalizing = PHQ-9 (β = -.57)*, dysphoria (-.58)*, lassitude (-.56)*, suicidality (-.35)*, insomnia (-.34)*, appetite loss (-.29)*, appetite gain (-.16)*, social anxiety composite (-.26)*, GAD (-.47)*, panic composite (-.41)*, PTSD composite (-.39)*, claustrophobia (-.16)*, OCD (-.16)*; psychoticism = social aloofness (-.28)*, suspiciousness (-.47)*, restricted affectivity (-.23)*, dissociation (-.26)*, positive schizotypy (-.35)*, mania (-.26)*; externalizing = antagonism (-.38)*, disinhibition (-.38)*, alcohol use (-.21)*; positively related to psychoticism = euphoria (.21)* **Sociability** negatively predicted internalizing = suicidality (-.21)*, insomnia (-.16)*, appetite loss (-.15)*, social anxiety composite (-.24)*, panic (-.13)*, claustrophobia (-.26)*, OCD (-.22)*; psychoticism = social aloofness (-.60)*, suspiciousness (-.28)*, restricted affectivity (-.39)*, dissociation (-.18)*, positive schizotypy (-.22)*, euphoria (-.23)*; externalizing = antagonism (-.19)*, disinhibition (-.16)*, drug use (-.15)* Assertiveness negative predicted internalizing = social anxiety (-.33)*; positively related to internalizing = PHQ-9 (.15)*, lassitude (.17)*; psychoticism = suspiciousness (.13)*, positive schizotypy (.17)*; externalizing = antagonism (.35)*, disinhibition (.13)* Experience seeking negatively predicted internalizing = agoraphobia (-.15)*; positively predicted internalizing = dysphoria (.19)*, lassitude (.13)*, suicidality (.19)*, insomnia (.20)*, appetite loss (.16)*, social anxiety composite (.15)*, OCD composite (.18)*; positively predicted psychoticism = social aloofness (.22)*, suspiciousness (.25)*, restricted affectivity (.31)*, dissociation composite (.18)*, positive schizotypy composite (.28)*, mania (.29)*, euphoria (.32)*; positively predicted externalizing = antagonism (.52)*, disinhibition (.59)*, alcohol use (.37)*, drug use (.27)* Logistic regression analyses (series 1): (OD) **Positive emotionality** negatively predicted internalizing disorders = dysthymic disorder (OD = .43)*, MDD (.36)*, depressed mood (.26)*, loss of interest (.40)*, appetite disturbance (.60)*, sleep disturbance (.53)*, motor disturbance (.53)*, fatigue/anergia (.27)*, worthlessness/guilt (.29)*, cognitive problems (.25)*, suicidal ideation (.33)*, GAD (.41)*, OCD (.43)*; negatively predicted psychoticism = mood disorder-psychotic (.34)*, mania (.47)*; negatively predicted externalizing = SUD (.63)* **Sociability** negatively predicted internalizing = PTSD (.49)*, agoraphobia (.31)* Assertiveness negatively predicted internalizing = social anxiety disorder (.54)*; positively predicted internalizing = depressed mood (1.60)*, loss of interest (1.77)*, fatigue/anergia (1.54)* Experience seeking positively predicted internalizing = suicidal ideation (2.00)*; positively

Reference	Population	N	Primary Features	Outcome(s)	Results
					predicted psychoticism = mania (1.74)*; positively predicted externalizing = AUD (2.99)*, SUD (2.65)* Multiple Regression Analyses with Big Five domain composites included as predictors (series 2): (β) **Positive emotionality** negatively predicted internalizing = PHQ-9 (-.33)*, dysphoria (-.27)*, lassitude (-.28)*, suicidality (-.18)*, GAD (-.22)*; negatively predicted psychoticism = (-.14)*, restricted affectivity (-.26)*; positively predicted internalizing = agoraphobia (.23)*; positively predicted psychoticism = mania (.18)*, euphoria (.48)*; positively predicted externalizing = disinhibition (.13)* **Sociability** negatively predicted internalizing = PHQ-9 (-.19)*, dysphoria (-.19)*, lassitude (-.14)*, suicidality (-.22)*, insomnia (-.19)*, appetite loss (-.16)*, social anxiety composite (-.30)*, GAD (-.11)*, panic composite (-.18)*, claustrophobia (-.25)* OCD composite (-.20)*; negatively predicted psychoticism = social aloofness (-.58)*, suspiciousness (-.25)*, restricted affectivity (-.32)*, dissociation (-.21)*, positive schizotypy (-.22)*, mania (-.17)*, euphoria (-.17)*; negatively predicted externalizing = disinhibition (-.20)*, drug use (-.18)* Assertiveness negatively predicted internalizing = social anxiety composite (-.25)*; positively predicted internalizing = PHQ-9 (.26)*, dysphoria (.16)*, lassitude (.26)*, insomnia (.13)*, GAD (.21)*, panic (.13)*, PTSD (.14)*; positively predicted psychoticism = suspiciousness (.11)*, positive schizotypy (.16)*; positively predicted externalizing = antagonism (.19*), disinhibition (.14)* Experience seeking negatively predicted internalizing = agoraphobia (-.21)*; positively predicted internalizing = dysphoria (.17)*, social anxiety (.14)*, OCD composite (.15)*; positively predicted psychoticism = social aloofness (.17)*, restricted affectivity (.20)*, mania (.18)*, euphoria (.20)*; positively predicted externalizing = antagonism (.22)*, disinhibition (.40)*, alcohol use (.29)*, drug use (.15)* Logistic regression analyses with Big Five domain composites included as predictors (series 2): (OD) **Positive emotionality** negatively predicted internalizing = MDD (.57)*, depressed mood (.36)*, loss of interest (.55)*, fatigue/anergia (.32)*, worthlessness/guilt (.49)*, cognitive problems (.45)*, suicidal ideation (.43)* **Sociability** negatively predicted internalizing = dysthymic disorder (.48)*, sleep disturbance (.66)*, agoraphobia (.32)*; negatively predicted psychoticism = mania (.45)* Assertiveness positively predicted internalizing = dysthymic disorder (2.12)*, MDD (1.83)*, depressed mood (2.03)*, loss of interest (1.96)*, sleep disturbance (1.47)*, fatigue/anergia (2.03)*, cognitive problems (1.79)*, agoraphobia (2.09)* positively predicted psychoticism = mood disorder-psychotic (4.49)*, mania (2.28)* Experience seeking negatively predicted internalizing = agoraphobia (.44)*; negatively predicted psychoticism = psychotic disorder (.47)*; positively predicted externalizing = AUD

Reference	Population	N	Primary Features	Outcome(s)	Results
					(2.45)*
Anglim & Grant (2016)	Undergraduate psychology students from Australian universities	337	Personality assessed through IPIP; exploratory factor analysis	Psychological and subjective well-being	Semi-partial correlations (controlling for Big 5 domains): **Cheerfulness** positively correlated with satisfaction with life (.26)***, emotional mastery (.12)***, self-acceptance (.16)*** **Gregariousness** negatively correlated with autonomy (-.15)*** Friendliness positively correlated with positive relations (.17)*** Assertiveness positively correlated with autonomy (.18)*** Excitement seeking negatively correlated with positive relations (-.19)***, emotional mastery (-.12)***, purpose in life (-.12)***, self-acceptance (-.13)***
Quevedo & Abella (2011)	University students and community members in Spain	554	Personality assessed through the NEO-PI-R; correlational analyses and hierarchical multiple regression analyses	Subjective well-being	Correlational analyses: (*r*) **Positive emotions** positively correlated with happiness (.40)***, life satisfaction (.32)***, positive affect (.18)***; negatively correlated with negative affect (-.09)* **Gregariousness** positively correlated with happiness (.12)**, life satisfaction (.09)* Warmth positively correlated with happiness (.26)***, life satisfaction (.19)***, positive affect (.23)***; negatively correlated with negative affect (-.10)* Assertiveness positively correlated with happiness (.21)***, life satisfaction (.12)**, positive affect (.23)*** Activity positively correlated with happiness (.15)***, life satisfaction (.11)**, positive affect (.33)*** Stepwise regression analyses (final model): (β) **Positive emotions** positively predicted happiness (.19)** Warmth positively predicted positive affect (.18)** Activity positively predicted negative affect (.25)***
Schimmack et al. (2004)	1) University students; 2) university students; 3) participants from the Riverside Accuracy Project; 4) university students	1) 136; 2) 124; 3) 146; 4) 344	Examined association between neuroticism, extraversion, and life satisfaction in four studies; personality assessed through NEO-PI-R (study 1 and study 3), IPIP (study 2), BFI (study 4); included informant ratings	Life satisfaction	Study 1) Correlational analyses: (*r*) **Positive emotions** positively correlated with life satisfactions at all three times (.40)*, (.41)*, (.38)* **Gregariousness** positively correlated with life satisfaction at all three times (.26)*, (.19)*, (.28)* Warmth positively correlated with life satisfaction at all three times (.27)*, (.25)*, (.25)* Assertiveness positively correlated with life satisfaction at time 1 (.21)* Activity positively correlated with life satisfaction at time 1 (.23)* and time 3 (.19)* Hierarchical regression analyses: (ΔR^2) **Positive emotions,** with depression, predicted life satisfaction above and beyond Neuroticism and Extraversion at all three times (.08)*, (.09)*, (.07)* Study 2) Correlational analyses: (*r*) **Cheerfulness** positively correlated with life satisfaction at both time points (.51)*, (.46)* **Gregariousness** positively correlated with life satisfaction at time 1 (.21)* Friendliness positively correlated with life satisfaction at both times (.43)*, (.37)* Assertiveness positively correlated with life satisfaction at both times (.36)*, (.33)* Hierarchical regression analyses: (ΔR^2) **Cheerfulness,** with depression, predicted life satisfaction above and beyond Neuroticism and

Reference	Population	N	Primary Features	Outcome(s)	Results
					Extraversion at both times (.11)*, (.15)* Study 3) Correlational analyses: **Positive emotions**, as rated by participant (.41)*, peers (.37)*, and parents (.27)*, positively correlated with life satisfaction; **Gregariousness**, as rated by participant (.31)*, peers (.26)*, and parents (.21)*, positively correlated with life satisfaction; Warmth, as rated by participant (.25)* and peers (.25)*, positively correlated with life satisfaction Assertiveness, as rated by participant (.35)*, peers (.20)*, and parents (.36)*, positively correlated with life satisfaction Excitement seeking, as rated by participant (.22)*, positively correlated with life satisfaction Hierarchical regression analyses: (ΔR^2) **Positive emotions,** with depression, predicted life satisfaction above and beyond Neuroticism and Extraversion when rated by participants (.04)* and peers (.05)* However, Neuroticism and Extraversion predicted life satisfaction above and beyond positive emotions and depression facets when rated by participants (.04)*. Results from parent ratings did not indicate any significant unique variance. Study 4) Correlational analyses: (*r*) **Positive emotions** positively correlated with life satisfaction (.36)* Hierarchical regression analyses: (ΔR^2) **Positive emotions,** with depression, predicted life satisfaction above and beyond Neuroticism and Extraversion (.08)*
Siegler & Brummett (2000)	Middle aged adults (college alumni)	2,379	Personality assessed through NEO-PI-R	Well-being	Correlational analyses: (*r*) **Positive emotions** positively correlated with self-acceptance (.29)***, environmental mastery (.13)***, positive relations with others (.25)***, purpose in life (.34)*** **Gregariousness** positively correlated with self-acceptance (.17)***, environmental mastery (.08)***, positive relations with others (.10)***, purpose in life (.17)*** Warmth positively correlated with self-acceptance (.24)*** environmental mastery (.09)***, positive relations with others (.21)***, purpose in life (.23)*** Assertiveness positively correlated with self-acceptance (.38)***, environmental mastery (.21)***, positive relations with others (.14)***, purpose in life (.25)*** Activity positively correlated with self-acceptance (.27)***, environmental mastery (.20)***, positive relations with others (.10)***, purpose in life (.19)*** Excitement seeking positively correlated with self-acceptance (.08)***, purpose in life (.07)***
Bipp et al. (2008)	Undergraduate university students	160	Personality assessed through NEO-PI-R; measures administered over 2-3 weeks	Achievement motivation, as assessed through goal orientations	Correlational analyses: (*r*) **Positive emotions** positively correlated with learning (.25)** Warmth positively correlated with learning (.23)** Assertiveness negatively correlated with performance-avoidance (-.31)** Activity positively correlated with learning (.23)**; negatively correlated with work avoidance (-.28)**

Reference	Population	N	Primary Features	Outcome(s)	Results
Ziegler et al. (2014)	Apprentices in laboratory professions, skilled production workers, metal and electrical technicians, and skilled commercial workers	501	Personality assessed through NEO-PI-R; supervisor ratings gathered over 1 year	Job training performance	Test-criterion correlations (controlling for age and gender): **Positive emotions** positively correlated with job training performance in skilled commercial workers (.25)* Activity positively correlated with job training performance in lab professionals (.17)*, skilled commercial workers (.20)* Multiple regression analyses: (unstandardized coefficients) **Positive emotions** positively predicted job training performance in skilled commercial workers (.07)* Warmth negatively predicted job training performance in skilled commercial workers (-.08)* Activity positively predicted job training performance in laboratory professionals (.07)* Multiple regression analyses controlling for general mental ability: (unstandardized coefficients) **Positive emotions** positively predicted job training performance in skilled commercial workers (.07)* Warmth negatively predicted job training performance in skilled commercial workers (-.08)* Activity positively predicted job training performance in laboratory professionals (.08)*
Ellershaw et al. (2016)	Nurses in Australia	393	Personality assessed through the NEO-FFI; path analyses	Work role performance (proficiency, adaptivity, proactivity)	Correlational analyses: (*r*) **Positive affect** positively correlated with proficiency at the individual (.34)**, team (.21)**, and organizational level (.30)**; positively correlated with adaptivity at the individual (.34)**, team (.16)**, and organizational level (.35)**; positively correlated with proactivity at the individual (.38)**, team (.14)**, and organizational level (.31)** **Sociability** positively correlated with proficiency at the individual (.15)**, team (.13)**, and organizational level (.14)**; positively correlated with adaptivity at the individual (.19)**, team (.17)**, and organizational level (.21)**; positively correlated with proactivity at the individual (.36)**, team (.17)**, and organizational level (.24)** Activity positively correlated with proficiency at the individual (.14)**, team (.28)**, and organizational level (.30)**; positively correlated with adaptivity at the individual (.20)**, team (.30)**, and organizational level (.32)**; positively correlated with proactivity at the individual (.39)**, team (.33)**, and organizational level (.38)** Path analyses: (standardized coefficients) **Positive affect** positively predicted proficiency at the individual (.34)***, team (.30)***, and organizational level (.23)***; adaptivity at the individual (.27)***, team (.29)***, and organizational level (.22)***; proactivity at the individual level (.16)* **Sociability** positively predicted proficiency at the organizational level (.14)** Activity positively predicted proficiency at the team (.11)* and organizational level (.27)***; adaptivity at the individual (.26)***, team (.24)***, and organizational level (.31)***; proactivity at the individual (.25)***, team (.27)***, and organizational level (.31)***
Studies Investigating Conscientiousness Facets					
Goldstein et al. (2017)	Community sample of	550	Personality assessed through the BFI and FI-FFM; longitudinal (18 months); bivariate and	First onset of depression and	Bivariate analyses: (OD) **Self-discipline** negatively predicted first onset of depression (.66)**, specific phobia (.70)**

Reference	Population	N	Primary Features	Outcome(s)	Results
	adolescent girls		multivariate analyses	anxiety disorders	**Dutifulness** negatively predicted first onset of depression (.74)* Deliberation negatively predicted first onset of depression (.74*), specific phobia (.73)* Order negatively predicted first onset of specific phobia (.67**)
Naragon-Gainey & Simms (2017)	Individuals with current/ recent psychiatric treatment	450	Personality assessed through the PID-5 and the first half of the NEO-PI-3 (NEO-PI-3FH); examined whether association between conscientiousness and psychopathology in mediated by impairment and accounted for by demoralization (assessed via Neuroticism)	Internalizing and externalizing psychopathology	Regression Analyses: (unstandardized weights) **NEO Discipline** negatively predicted GAD (-.07)* **NEO Dutifulness** negatively predicted alcohol use (-.11)*, substance use (-.17)***, antisocial personality disorder (-.11)* NEO Competence negatively predicted MDD (-.18)***, persistent depressive disorder (-.14)**, PTSD (-.32)***, GAD (-.11)**, social anxiety disorder (-.07)*, OCD (-.04)** NEO Order positively predicted persistent depressive disorder (.06)*, PTSD (.11)*, GAD (.06)* NEO Deliberation negatively predicted antisocial personality disorder (-.11)** **PID-5 Irresponsibility** positively predicted MDD (.66)*, persistent depressive disorder (.76)**, PTSD (1.40*, GAD (.52)*, alcohol use (.81)**, substance use (1.69)***, antisocial personality disorder (.9)*** **PID-5 Distractibility** negatively predicted alcohol use (-.68)**, substance use (-.95)***, antisocial personality disorder (-.62)**; positively predicted MDD (.92)***, PDD (.65)***, PTSD (1.62)***, GAD (.74)***, social anxiety disorder (.66)*** PID-5 Impulsivity positively predicted MDD (.82)***, persistent depressive disorder (.45)*, PTSD (1.53)***, OCD (.17)*, alcohol use (.68)**, substance use (.80)**, antisocial personality disorder (.62)* PID-5 Perfectionism positively predicted MDD (.37)*, persistent depressive disorder (.53)***, PTSD (.93)***, GAD (.49)**, panic (.94)*, social anxiety (.37)***, OCD (.21)***, antisocial personality disorder (.56)** PID-5 Risk Taking negatively predicted MDD (-.57)*; positively predicted alcohol use (.57)*, substance use (.57)*, antisocial personality disorder (.71)** Semipartial correlations controlling for neuroticism/negative affectivity: **NEO Dutifulness** negatively correlated with alcohol use (-.18)**, substance use (-.24)***, antisocial personality disorder (-.14)*; positively correlated with panic (.16)** NEO Competence negatively correlated with alcohol use (-.14)*; positively correlated with panic (.15)** NEO Order positively correlated with antisocial personality disorder (.14)* NEO Deliberation negatively correlated with alcohol use (-.18)**, substance use (-.18)**, antisocial personality disorder (-.20)**; positively correlated with GAD (.14)*** **PID-5 Irresponsibility** positively correlated with MDD (.13)***, persistent depressive disorder (.13)**, PTSD (.14)***, alcohol use (.17)***, substance use (.28)***, antisocial personality disorder (.20)*** **PID-5 Distractibility** positively correlated with MDD (.14)***, persistent depressive disorder (.10)*, PTSD (.10)**, social anxiety (.10)* PID-5 Impulsivity positively correlated with MDD (.12)**, PTSD (.16)***, OCD (.11)*, alcohol

Reference	Population	N	Primary Features	Outcome(s)	Results
					use (.22)***, substance use (.25)***, antisocial personality disorder (.24)*** PID-5 Perfectionism positively correlated with OCD (.10)*, antisocial personality disorder (.13)** PID-5 Risk Taking positively correlated with PTSD (.12)**, alcohol use (.23)***, substance use (.24)***, antisocial personality disorder (.26)***
Naragon-Gainey & Watson (2014)	Community sample of individuals aged 18-85	398-598	Use of consensually defined facets; multi-inventory facet-level structural analysis; personality assessed through the 16PF, HPI, JPI-R, MPQ, NEO PI-R, 6PFQ, and PANAS-X; longitudinal (5 years); depression facet held constant in hierarchical regression analyses	Onset and change in depression	Bivariate correlations: **Achievement** negatively correlated with time 2 depression (r = - .18)** Deliberation negatively correlated with time 2 depression (r = - .28)** Order negatively correlated with time 2 depression (r = - .13)** Conventionality negatively correlated with time 2 depression (r = - .26)** Hierarchical multiple regression analyses: Conventionality uniquely negatively predicted depression at time 2 (β = -.10)*
Walton et al. (2017)	Undergraduate psychology students and outpatients ages 17-64	240	Personality assessed through NEO PI-R; confirmatory factor analysis	Internalizing disorders (fear-based and distress-based) and externalizing disorders	Zero-order correlations: **Self-discipline** negatively related to SUD (-.23)*, AAD (-.15)*, DAD (-.20)*, distress disorders (-.25)*, MDD (-.38)*, GAD (-.16)*, fear disorders (-.24)*, PD (-.18)*, SP (-.24)* **Dutifulness** negatively related to DAD (-.20)* **Achievement striving** negatively related to SUD (-.14)*, DAD (-.15)*, MDD (-.28)*, SP (-.16)* Deliberation negatively related to SUD (-.19)*, AAD (-.16)*, DAD (-.20)*, MDD (-.20)*, PTSD (-.17)*, PD (-.14)* Order negatively related to distress disorders (-.17)*, MDD (-.24)*, GAD (-.15)*, fear disorders (-.14)* Competence negatively related to MDD (-.20)*, SP (-.19)* Regression analyses: (β) **Self-discipline** negatively predicted SUD (-.21)*, distress disorders (-.29)*, fear disorders (-.31)*
Anglim & Grant (2016)	Undergraduate psychology students from Australian universities	337	Personality assessed through International Personality Item Pool (IPIP); exploratory factor analysis	Psychological and subjective well-being	Semi-partial correlations (controlling for Big 5 domains): **Achievement striving** positively correlated with positive affect (.16)***, purpose in life (.21)*** Orderliness negatively correlated with purpose in life (-.12)*** Cautiousness negatively correlated with positive affect (-.15)***
Quevedo & Abella (2011)	University students and community members in Spain	554	Personality assessed through the NEO-PI-R; correlational analyses and hierarchical multiple regression analyses	Subjective well-being	Correlational analyses: (r) **Self-discipline** positively correlated with happiness (.14)***, life satisfaction (.24)***, positive affect (.32)***; negatively correlated with negative affect (-.13)** **Dutifulness** positively correlated with life satisfaction (.15)***, positive affect (.17)***; negatively correlated with negative affect (-.10)* **Achievement striving** positively correlated with happiness (.13)**, life satisfaction (.23)***, positive affect (.34)*** Competence positively correlated with happiness (.20)***, life satisfaction (.26)***, positive affect (.34)***; negatively correlated with negative affect (-.15)*** Order positively correlated with life satisfaction (.15)***, positive affect (.16)*** Deliberation positively correlated with life satisfaction (.12)**, positive affect (.12)**; negatively

Reference	Population	N	Primary Features	Outcome(s)	Results
					correlated with negative affect (-.09)* Stepwise regression analyses (final model): (β) **Achievement striving** positively predicted life satisfaction (.16)**
Siegler & Brummett (2000)	Middle aged adults (college alumni)	2,379	Personality assessed through NEO-PI-R	Well-being	Correlational analyses: (*r*) **Self-discipline** positively correlated with self-acceptance (.38)***, environmental mastery (.18)***, positive relations with others (.10)***, purpose in life (.24)*** **Dutifulness** positively correlated with self-acceptance (.25)***, environmental mastery (.18)***, purpose in life (.16)*** **Achievement striving** positively correlated with self-acceptance (.32)***, environmental mastery (.24)***, positive relations with others (.08)***, purpose in life (.18)*** Competence positively correlated with self-acceptance (.44)***, environmental mastery (.22)***, positive relations with others (.17)***, purpose in life (.27)*** Order positively correlated with self-acceptance (.16)***, environmental mastery (.10)***, purpose in life (.09)*** Deliberation positively correlated with self-acceptance (.16)***, environmental mastery (.08)***, purpose in life (.10)***
Bipp et al. (2008)	Undergraduate university students	160	Personality assessed through NEO-PI-R; measures administered over 2-3 weeks	Achievement motivation, as assessed through goal orientations	Correlational analyses: (*r*) **Self-discipline** negatively correlated with work avoidance (-.32)** **Dutifulness** negatively correlated with work avoidance (-.29)** **Achievement striving** positively correlated with learning (.30)**; negatively correlated with work avoidance (-.31)** Competence positively correlated with learning (.20)**; negatively correlated with performance-avoidance (-.22)**, work avoidance (-.20)** Order positively correlated with performance-approach (.16)*
Ziegler et al. (2014)	Apprentices in laboratory professions, skilled production workers, metal and electrical technicians, and skilled commercial workers	501	Personality assessed through NEO-PI-R; supervisor ratings gathered over 1 year	Job training performance	Test-criterion correlations (controlling for age and gender): **Dutifulness** positively correlated with job training performance in laboratory professionals (.27)** **Achievement striving** positively correlated with job training performance in metal/electronic technicians (.20)* Multiple regression analyses: (unstandardized coefficients) **Dutifulness** positively predicted job training performance in laboratory professionals (.03)*, skilled production workers (.03)*, metal/electronic technicians (.03)*, skilled commercial workers (.03)* Deliberation negatively predicted job training performance in laboratory professionals (-.03)*, skilled production workers (-.03)*, metal/electronic technicians (-.03)*, skilled commercial workers (-.03)* Multiple regression analyses controlling for general mental ability: (unstandardized coefficients) **Dutifulness** positively predicted job training performance in laboratory professionals (.06)* Deliberation negatively predicted job training performance in skilled commercial workers (-.06)*
Ellershaw et al. (2016)	Nurses in Australia	393	Personality assessed through the NEO-FFI; path analyses	Work role performance	Correlational analyses: (*r*) **Dependability** positively correlated with proficiency at the individual (.59)**, team (.31)**, and

Reference	Population	N	Primary Features	Outcome(s)	Results
				(proficiency, adaptivity, proactivity)	organizational level (.42)**; positively correlated with adaptivity at the individual (.55)**, team (.25)**, and organizational level (.43)**; positively correlated with proactivity at the individual (.27)**, team (.21)**, and organizational level (.28)** **Goal striving** positively correlated with proficiency at the individual (.52)**, team (.35)**, and organizational level (.45)**; positively correlated with adaptivity at the individual (.49)**, team (.33)**, and organizational level (.50)**; positively correlated with proactivity at the individual (.38)**, team (.30)**, and organizational level (.35)** Orderliness positively correlated with proficiency at the individual (.44)**, team (.19)**, and organizational level (.29)**; positively correlated with adaptivity at the individual (.35)**, team (.13)*, and organizational level (.30)**; positively correlated with proactivity at the individual (.18)**, team (.11)*, and organizational level (.20)** Path analyses: (standardized coefficients) **Dependability** positively predicted proficiency at the individual (.41)*** and team level (.45)***; adaptability at the individual (.22)** and team level (.17)**; and proactivity at the individual level (.18)* **Goal striving** positively predicted proficiency at the individual (.19)***, team (.21)***, and organizational level (.39)***; adaptivity at the individual (.32)***, team (.41)***, and organizational level (.30)***; proactivity at the individual (.29)***, team (.34)***, and organizational level (.32)***

Note. Bolded facets indicate facets similar to those posited in Hypothesis 2 to provide the strongest estimates. Measures: BFI = Big Five Inventory; FI-FFM = Faceted Inventory of the Five Factor Model; 16PF = Sixteen Personality Factor Questionnaire; HPI = Hogan Personality Inventory; JPI-R = Jackson Personality Inventory - Revised; MPQ = Multidimensional Personality Questionnaire; NEO PI-R = NEO Personality Inventory - Revised; 6PFQ = Six-Factor Personality Questionnaire; PANAS-X = Positive and Negative Affect Schedule – Expanded Form; IPIP = International Personality Item Pool; MACL = Mood Adjective Checklist; DES = Differential Emotions Scale; TAI = Temperament and Affectivity Inventory; NEO PI-3 = NEO Personality Inventory – Third Edition; NEO-FFI = NEO Five Factor Inventory; HEXACO-PI-R = ; PHQ-9 = ; PID-5 = ; NEO-PI-3FH = ; Outcomes: GAD = Generalized Anxiety Disorder; SUD = Substance Use Disorder; MDD = Major Depressive Disorder; PTSD = Posttraumatic Stress Disorder; PD = Panic Disorder; SP = Social Phobia; Ag = Agoraphobia; AAD = Alcohol Abuse/Dependence; DAD = Drug Abuse/Dependence; OCD = Obsessive-Compulsive Disorder; PSRS Social = Phobic Stimuli Response Scales - Social; AUDIT = Alcohol Use Disorders Identification Test; SMAST = Short Michigan Alcoholism Screening Test;

* $p < .05$; ** $p < .01$; *** $p < .001$. Significance level is not noted if not identified in article.

Table A.2

Mental Health Outcomes Predicted by Neuroticism Facets

	Variables	Dysphoria		Ill Temper		Panic		Insomnia		Lassitude		Checking	
		β	*(SE)*	β	*(SE)*	β	*(SE)*	β	*(SE)*	β	*(SE)*	β	*(SE)*
Neuroticism	Intercept	-.11	(.03)**	-.10	(.03)**	-.10	(.04)*	-.02	(.05)	-.04	(.05)	-.06	(.05)
	PSS	.64	(.03)***	.42	(.03)***	.37	(.04)***	.33	(.04)***	.41	(.03)***	.31	(.04)***
	Neuroticism	.15	(.04)***	.20	(.04)***	.18	(.04)***	.12	(.05)*	.21	(.05)***	.24	(.05)***
	Neuroticism*PSS	.16	(.03)***	.20	(.03)***	.15	(.04)***	.05	(.04)	.06	(.03)*	.12	(.03)***
Anxiety	Intercept	-.09	(.03)**	-.08	(.04)*	-.09	(.04)*	-.02	(.05)	-.03	(.05)	-.06	(.05)
	PSS	.63	(.03)***	.39	(.03)***	.38	(.04)***	.34	(.04)***	.43	(.03)***	.31	(.03)***
	Anxiety	.14	(.04)***	.16	(.04)***	.12	(.04)**	.10	(.05)*	.17	(.05)***	.26	(.05)***
	Anxiety*PSS	.13	(.03)***	.14	(.03)***	.10	(.04)**	.04	(.04)	.03	(.03)	.12	(.03)***
Depression	Intercept	-.10	(.03)**	-.11	(.04)**	-.10	(.04)*	-.03	(.05)	-.05	(.05)	-.06	(.05)
	PSS	.63	(.03)***	.44	(.03)***	.37	(.04)***	.34	(.04)***	.42	(.03)***	.33	(.03)***
	Depression	.19	(.03)***	.11	(.04)**	.17	(.04)***	.12	(.05)*	.23	(.05)***	.17	(.05)***
	Depression*PSS	.17	(.03)***	.18	(.03)***	.14	(.04)***	.06	(.04)	.08	(.03)**	.10	(.03)**
Anger Prone	Intercept	-.08	(.03)*	-.08	(.04)*	-.08	(.04)	-.01	(.05)	-.03	(.05)	-.04	(.05)
	PSS	.66	(.03)***	.39	(.03)***	.39	(.04)***	.36	(.04)***	.45	(.03)***	.34	(.03)***
	AngerProne	.02	(.04)	.20	(.04)***	.09	(.04)*	.03	(.05)	.06	(.05)	.11	(.05)*
	AngerProne*PSS	.10	(.03)***	.17	(.03)***	.10	(.04)*	.01	(.04)	.02	(.03)	.06	(.03)
Somatic	Intercept	-.08	(.03)*	-.10	(.04)**	-.07	(.04)	-.02	(.05)	-.03	(.04)	-.04	(.05)
	PSS	.63	(.03)***	.43	(.03)***	.36	(.04)***	.34	(.04)***	.42	(.03)***	.33	(.03)***
	Somatic	.16	(.03)***	.11	(.04)**	.20	(.04)***	.14	(.05)**	.25	(.04)***	.20	(.05)***
	Somatic*PSS	.11	(.03)***	.13	(.03)***	.09	(.04)*	.05	(.04)	.04	(.03)	.09	(.03)**

(table continues)

	Variables	Dysphoria		Ill Temper		Panic		Insomnia		Lassitude		Checking	
		β	*(SE)*	β	*(SE)*	β	*(SE)*	β	*(SE)*	β	*(SE)*	β	*(SE)*
Envy	Intercept	-.08	(.04)*	-.09	(.04)	-.08	.04	<-.01	(.05)	-.03	(.05)	-.04	(.05)
	PSS	.65	(.03)***	.40	(.03)***	.39	(.04)***	.36	(.04)***	.46	(.03)***	.34	(.03)***
	Envy	.03	(.04)	.17	(.04)***	.08	(.04)	.03	(.05)	.02	(.05)	.10	(.05)*
	Envy*PSS	.09	(.03)**	.17	(.03)***	.09	(.04)*	-.01	(.04)	.02	(.03)	.05	(.03)

Note. AngerProne = Anger Proneness FIFFM facet; Somatic = Somatic Complaints FIFFM facet. * $p < .05$; ** $p < .01$; *** $p < .001$

Table A.3

Cognitive and Behavioral Outcomes Predicted by Neuroticism Facets

	Variables	Cognition		Sleep		Social		Fatigue	
		β	*(SE)*	β	*(SE)*	β	*(SE)*	β	*(SE)*
Neuroticism	Intercept	.04	(.05)	.01	(.05)	-.01	(.05)	-.01	(.04)
	PSS	-.43	(.04)***	-.30	(.04)***	.41	(.04)***	.45	(.04)***
	Neuroticism	-.07	(.05)	-.10	(.05)	.10	(.05)*	.10	(.05)*
	Neuroticism*PSS	-.07	(.03)*	-.03	(.04)	.02	(.04)	<.01	(.03)
Anxiety	Intercept	.02	(.05)	.01	(.05)	<-.01	(.05)	<-.01	(.04)
	PSS	-.43	(.04)***	-.30	(.04)***	.42	(.04)***	.46	(.04)***
	Anxiety	-.06	(.05)	-.13	(.05)*	.08	(.05)	.07	(.04)
	Anxiety*PSS	-.01	(.03)	-.02	(.04)	.00	(.04)	-.02	(.03)
Depression	Intercept	.03	(.05)	.01	(.05)	-.01	(.05)	-.02	(.04)
	PSS	-.43	(.04)***	-.30	(.04)***	.42	(.04)***	.44	(.04)***
	Depression	-.07	(.05)	-.10	(.05)	.07	(.05)	.13	(.04)**
	Depression*PSS	-.05	(.03)	-.03	(.04)	.02	(.04)	.04	(.03)

(table continues)

	Variables	Cognition		Sleep		Social		Fatigue	
		β	*(SE)*	β	*(SE)*	β	*(SE)*	β	*(SE)*
Anger Prone	Intercept	.03	(.05)	.01	(.05)	-.01	(.05)	-.01	(.04)
	PSS	-.45	(.04)***	-.33	(.04)***	.44	(.04)***	.48	(.04)***
	AngerProne	<-.01	(.05)	-.01	(.05)	.01	(.05)	.01	(.04)
	AngerProne*PSS	-.04	(.04)	-.02	(.04)	.01	(.04)	-.01	(.03)
Somatic	Intercept	.03	(.05)	.02	(.05)	-.01	(.05)	<-.01	(.04)
	PSS	-.43	(.03)***	-.31	(.04)***	.41	(.04)***	.44	(.04)***
	Somatic	-.14	(.05)**	-.12	(.05)*	.15	(.05)**	.17	(.04)***
	Somatic*PSS	-.09	(.03)**	-.05	(.04)	.05	(.04)	-.02	(.03)
Envy	Intercept	.03	(.05)	-.01	(.05)	<.01	(.05)	<-.01	(.04)
	PSS	-.46	(.04)***	-.33	(.04)***	.44	(.04)***	.49	(.03)***
	Envy	.04	(.05)	.01	(.05)	<.01	(.05)	-.04	(.04)
	Envy*PSS	-.05	(.03)	.03	(.04)	-.02	(.03)	-.03	(.03)

Note. AngerProne = Anger Proneness FIFFM facet; Somatic = Somatic Complaints FIFFM facet; Cognition = PROMIS Applied Cognition Abilities; Sleep = PROMIS Sleep Disturbance; Social = PROMIS Ability to Participate in Social Roles and Activities; Fatigue = PROMIS Fatigue. * $p < .05$; ** $p < .01$; *** $p < .001$

Table A.4

Mental Health Outcomes Predicted by Extraversion Facets

	Variables	Dysphoria		Ill Temper		Panic		Insomnia		Lassitude		Checking	
		β	*(SE)*	β	*(SE)*	β	*(SE)*	β	*(SE)*	β	*(SE)*	β	*(SE)*
Extraversion	Intercept	-.06	(.03)	-.07	(.04)	-.06	(.04)	-.01	(.05)	-.02	(.04)	-.03	(.05)
	PSS	.65	(.03)***	.38	(.03)***	.39	(.04)***	.37	(.04)***	.46	(.03)***	.35	(.03)***
	Extraversion	-.05	(.03)	.02	(.04)	-.06	(.04)	-.01	(.05)	-.03	(.04)	.04	(.05)
	Extraversion*PSS	-.03	(.03)	.03	(.03)	-.01	(.04)	<-.01	(.04)	-.02	(.03)	.07	(.03)*

(table continues)

	Variables	Dysphoria		Ill Temper		Panic		Insomnia		Lassitude		Checking	
		β	*(SE)*	β	*(SE)*	β	*(SE)*	β	*(SE)*	β	*(SE)*	β	*(SE)*
Pos Temp	Intercept	-.07	(.03)	-.10	(.04)	-.07	(.04)	-.01	(.05)	-.03	(.04)	-.02	(.05)
	PSS	.65	(.03)***	.44	(.04)***	.39	(.04)***	.36	(.04)***	.45	(.03)***	.35	(.03)***
	Pos Temp	-.04	(.03)	-.02	(.04)	-.07	(.04)	-.04	(.05)	-.15	(.04)***	.03	(.05)
	Pos Temp*PSS	-.06	(.03)*	-.07	(.03)*	-.05	(.04)	<.01	(.04)	-.04	(.03)	.06	(.03)
Sociability	Intercept	-.06	(.03)	-.09	(.04)*	-.06	(.04)	-.01	(.05)	-.02	(.04)	-.03	(.05)
	PSS	.65	(.03)***	.44	(.04)***	.39	(.04)***	.37	(.04)***	.46	(.03)***	.35	(.03)***
	Sociability	-.07	(.03)	.03	(.04)	-.06	(.04)	-.06	(.05)	-.03	(.04)	.05	(.05)
	Sociability*PSS	-.04	(.03)	.01	(.04)	<.01	(.04)	-.03	(.04)	-.02	(.03)	.07	(.03)*
Ascendance	Intercept	-.06	(.03)	-.08	(.04)*	-.06	(.04)	-.01	(.05)	-.02	(.04)	-.03	(.05)
	PSS	.65	(.03)***	.37	(.03)***	.40	(.04)***	.37	(.04)***	.46	(.03)***	.35	(.03)***
	Ascendance	-.04	(.03)	.03	(.04)	<-.01	(.04)	.01	(.05)	<-.01	(.04)	.03	(.05)
	Ascendance*PSS	-.03	(.03)	.04	(.03)	.02	(.04)	.01	(.04)	<-.01	(.03)	.03	(.03)
Venture	Intercept	-.06	(.03)	-.07	(.04)	-.06	(.04)	-.01	(.05)	-.02	(.04)	-.03	(.05)
	PSS	.65	(.03)***	.38	(.03)***	.40	(.04)***	.37	(.04)***	.46	(.03)***	.35	(.03)***
	Venture	-.02	(.03)	.05	(.04)	-.01	(.04)	.05	(.05)	.01	(.04)	.04	(.05)
	Venture*PSS	-.02	(.03)	.05	(.03)	.01	(.04)	-.03	(.04)	-.04	(.03)	.04	(.03)
Frankness	Intercept	-.06	(.03)	-.07	(.04)	-.06	(.04)	-.01	(.05)	-.03	(.04)	-.03	(.05)
	PSS	.65	(.03)***	.40	(.03)***	.40	(.04)***	.37	(.04)***	.46	(.03)***	.36	(.03)***
	Frankness	.02	(.03)	.01	(.04)	-.05	(.04)	.01	(.05)	.04	(.04)	.02	(.05)
	Frankness*PSS	.04	(.03)	.03	(.03)	-.01	(.04)	.03	(.04)	.04	(.03)	.05	(.03)

Note. Pos Temp = Positive Temperament FIFFM facet; Venture = Venturesomeness FIFFM facet. * $p < .05$; ** $p < .01$; *** $p < .001$

Table A.5

Cognitive and Behavioral Outcomes Predicted by Extraversion Facets

Variables		Cognition		Sleep		Social		Fatigue	
		β	*(SE)*	β	*(SE)*	β	*(SE)*	β	*(SE)*
Extraversion	Intercept	.01	(.04)	<.01	(.05)	<-.01	(.05)	-.01	(.04)
	PSS	-.44	(.03)***	-.33	(.04)***	.44	(.04)***	.48	(.03)***
	Extraversion	.10	(.04)*	.03	(.05)	<.01	(.05)	-.04	(.04)
	Extraversion*PSS	-.01	(.03)	<.01	(.04)	.03	(.03)	-.01	(.03)
Pos Temp	Intercept	.02	(.05)	<-.01	(.05)	<-.01	(.05)	-.01	(.04)
	PSS	-.44	(.03)***	-.33	(.04)***	.44	(.04)***	.47	(.04)***
	Pos Temp	.09	(.05)	.04	(.05)	-.01	(.05)	-.10	(.03)*
	Pos Temp*PSS	.02	(.03)	-.02	(.04)	<.01	(.03)	.02	(.04)
Sociability	Intercept	.01	(.05)	<.01	(.05)	<-.01	(.05)	-.01	(.03)
	PSS	-.44	(.03)***	-.33	(.04)***	.44	(.04)***	.48	(.04)***
	Sociability	.05	(.04)	.07	(.05)	-.06	(.05)	-.07	(.03)
	Sociability*PSS	-.02	(.03)	.01	(.04)	-.02	(.04)	-.04	(.04)
Ascendance	Intercept	.01	(.04)	<.01	(.05)	<.01	(.05)	-.01	(.03)
	PSS	-.44	(.03)***	-.33	(.04)***	.44	(.03)***	.48	(.04)***
	Ascendance	.12	(.04)**	<.01	(.05)	<-.01	(.05)	-.04	(.03)
	Ascendance*PSS	<.01	(.03)	<.01	(.04)	.06	(.03)	<-.01	(.04)
Venture	Intercept	.01	(.04)	<.01	(.05)	<-.01	(.05)	-.01	(.03)
	PSS	-.45	(.03)***	-.33	(.04)***	.44	(.04)***	.48	(.04)***
	Venture	.11	(.04)*	-.04	(.05)	-.01	(.05)	-.02	(.03)
	Venture*PSS	.03	(.03)	.05	(.04)	-.03	(.03)	-.04	(.04)

(table continues)

Variables		Cognition		Sleep		Social		Fatigue	
		β	*(SE)*	β	*(SE)*	β	*(SE)*	β	*(SE)*
Frankness	Intercept	.02	(.05)	.01	(.05)	-.01	(.04)	-.01	(.03)
	PSS	-.44	(.03)***	-.34	(.04)***	.44	(.03)***	.48	(.04)***
	Frankness	-.03	(.04)	.05	(.05)	.09	(.04)*	.05	(.03)
	Frankness*PSS	-.03	(.03)	-.04	(.04)	.10	(.03)**	.02	(.04)

Note. Pos Temp = Positive Temperament FIFFM facet; Venture = Venturesomeness FIFFM facet; Cognition = PROMIS Applied Cognition Abilities; Sleep = PROMIS Sleep Disturbance; Social = PROMIS Ability to Participate in Social Roles and Activities; Fatigue = PROMIS Fatigue. * $p < .05$; ** $p < .01$; *** $p < .001$

Table A.6

Mental Health Outcomes Predicted by Agreeableness Facets

Variables		Dysphoria		Ill Temper		Panic		Insomnia		Lassitude		Checking	
		β	*(SE)*	β	*(SE)*	β	*(SE)*	β	*(SE)*	β	*(SE)*	β	*(SE)*
Agreeable	Intercept	-.07	(.03)	-.07	(.04)	-.07	(.04)	-.01	(.05)	-.03	(.04)	-.03	(.05)
	PSS	.65	(.03)***	.38	(.03)***	.39	(.04)***	.36	(.04)***	.46	(.03)***	.35	(.03)***
	Agreeable	-.02	(.04)	-.10	(.04)**	-.11	(.04)*	-.07	(.05)	-.03	(.05)	-.02	(.05)
	Agreeable*PSS	-.05	(.03)	-.09	(.03)**	-.09	(.04)*	<.01	(.04)	-.01	(.03)	.01	(.03)
Empathy	Intercept	-.06	(.03)	-.07	(.04)	-.06	(.04)	-.01	(.05)	-.02	(.04)	-.03	(.05)
	PSS	.65	(.03)***	.39	(.03)***	.40	(.04)***	.37	(.04)***	.46	(.03)***	.36	(.03)***
	Empathy	.03	(.03)	-.02	(.04)	-.03	(.04)	.05	(.05)	.08	(.04)	.10	(.05)*
	Empathy*PSS	-.01	(.03)	-.02	(.03)	-.04	(.04)	.04	(.04)	<.01	(.03)	.05	(.03)
TrustCyn	Intercept	-.07	(.03)*	-.09	(.04)*	-.07	(.04)	-.02	(.05)	-.03	(.04)	-.05	(.05)
	PSS	.65	(.03)***	.43	(.03)***	.39	(.04)***	.35	(.04)***	.45	(.03)***	.34	(.03)***
	TrustCyn	-.06	(.04)	-.07	(.04)	-.10	(.04)*	-.09	(.05)*	-.10	(.05)*	-.11	(.05)*
	TrustCyn*PSS	-.07	(.03)*	-.09	(.03)**	-.08	(.04)*	-.06	(.04)	-.05	(.03)	-.04	(.03)

(table continues)

Variables		Dysphoria		Ill Temper		Panic		Insomnia		Lassitude		Checking	
		β	*(SE)*	β	*(SE)*	β	*(SE)*	β	*(SE)*	β	*(SE)*	β	*(SE)*
StraiMan	Intercept	-.07	(.03)*	-.07	(.04)	-.07	(.04)	-.02	(.05)	-.03	(.04)	-.04	(.05)
	PSS	.66	(.03)***	.37	(.03)***	.40	(.04)***	.36	(.04)***	.45	(.03)***	.35	(.03)***
	StraiMan	-.05	(.03)	-.09	(.04)*	-.08	(.04)*	-.10	(.05)*	-.09	(.04)	-.09	(.05)
	StraiMan*PSS	-.09	(.03)**	-.08	(.03)**	-.10	(.04)**	-.05	(.04)	-.04	(.03)	-.04	(.03)
Modesty	Intercept	-.06	(.04)	-.07	(.04)	-.06	(.04)	.02	(.05)	-.01	(.05)	-.04	(.05)
	PSS	.66	(.03)***	.39	(.03)***	.37	(.03)***	.37	(.04)***	.46	(.03)***	.36	(.03)***
	Modesty	.02	(.04)	-.08	(.04)*	-.05	(.04)	-.08	(.05)	-.03	(.05)	.07	(.05)
	Modesty*PSS	.01	(.03)	-.07	(.03)*	-.06	(.03)	.06	(.04)	.01	(.03)	.04	(.03)

Note. Agreeable = Agreeableness FIFFM trait; TrustCyn = Trust vs. Cynicism FIFFM facet; StraiMan = Straightforwardness vs. Manipulativeness FIFFM facet. * $p < .05$; ** $p < .01$; *** $p < .001$

Table A.7

Cognitive and Behavioral Outcomes Predicted by Agreeableness Facets

Variables		Cognition		Sleep		Social		Fatigue	
		β	*(SE)*	β	*(SE)*	β	*(SE)*	β	*(SE)*
Agreeable	Intercept	.02	(.04)	<-.01	(.05)	<-.01	(.05)	-.01	(.04)
	PSS	-.46	(.03)***	-.32	(.04)***	.44	(.04)***	.48	(.03)***
	Agreeable	-.08	(.05)	.06	(.05)	-.01	(.05)	.01	(.04)
	Agreeable*PSS	<.01	(.03)	-.03	(.04)	<.01	(.03)	<-.01	(.03)
Empathy	Intercept	.01	(.04)	<.01	(.05)	<-.01	(.04)	-.01	(.04)
	PSS	-.45	(.03)***	-.33	(.04)***	.44	(.04)***	.48	(.03)***
	Empathy	-.06	(.04)	-.05	(.05)	.11	(.05)*	.07	(.04)
	Empathy*PSS	.01	(.03)	-.02	(.04)	.03	(.03)	.01	(.03)

(table continues)

Variables		Cognition		Sleep		Social		Fatigue	
		β	*(SE)*	β	*(SE)*	β	*(SE)*	β	*(SE)*
TrustCyn	Intercept	.01	(.05)	<-.01	(.05)	<-.01	(.05)	-.01	(.04)
	PSS	-.45	(.03)***	-.32	(.04)***	.42	(.04)***	.48	(.03)***
	TrustCyn	-.01	(.05)	.10	(.05)*	-.15	(.05)**	-.05	(.04)
	TrustCyn*PSS	.01	(.03)	.01	(.04)	-.02	(.03)	-.02	(.03)
StraiMan	Intercept	.01	(.05)	<.01	(.05)	-.01	(.05)	-.02	(.04)
	PSS	-.45	(.03)***	-.32	(.04)***	.43	(.04)***	.48	(.03)***
	StraiMan	-.06	(.05)	.08	(.05)	-.08	(.05)	-.04	(.04)
	StraiMan*PSS	<-.01	(.03)	<.01	(.04)	-.04	(.04)	-.05	(.03)
Modesty	Intercept	.02	(.05)	-.02	(.05)	.02	(.05)	<.01	(.04)
	PSS	-.45	(.04)***	-.34	(.04)***	.44	(.04)***	.49	(.03)***
	Modesty	-.07	(.05)	.08	(.05)	<-.01	(.05)	-.01	(.04)
	Modesty*PSS	.02	(.03)	-.04	(.04)	.03	(.04)	.01	(.03)

Note. Agreeable = Agreeableness FIFFM trait; TrustCyn = Trust vs. Cynicism FIFFM facet; StraiMan = Straightforwardness vs. Manipulativeness FIFFM facet; Cognition = PROMIS Applied Cognition Abilities; Sleep = PROMIS Sleep Disturbance; Social = PROMIS Ability to Participate in Social Roles and Activities; Fatigue = PROMIS Fatigue. * $p < .05$; ** $p < .01$; *** $p < .001$

Table A.8

Mental Health Outcomes Predicted by Conscientiousness Facets

Variables		Dysphoria		Ill Temper		Panic		Insomnia		Lassitude		Checking	
		β	*(SE)*	β	*(SE)*	β	*(SE)*	β	*(SE)*	β	*(SE)*	β	*(SE)*
Conscient	Intercept	-.07	(.03)*	-.12	(.04)**	-.08	(.04)	<-.01	(.05)	-.03	(.04)	-.03	(.05)
	PSS	.65	(.03)***	.45	(.04)***	.39	(.04)***	.36	(.04)***	.44	(.03)***	.35	(.03)***
	Conscient	-.11	(.03)**	-.08	(.04)*	-.10	(.04)*	-.02	(.05)	-.13	(.04)**	.02	(.05)
	Conscient*PSS	-.10	(.03)***	-.14	(.03)***	-.11	(.04)**	.01	(.04)	-.04	(.03)	.01	(.03)

(table continues)

Variables		Dysphoria		Ill Temper		Panic		Insomnia		Lassitude		Checking	
		β	*(SE)*	β	*(SE)*	β	*(SE)*	β	*(SE)*	β	*(SE)*	β	*(SE)*
SelfDis	Intercept	-.08	(.03)*	-.12	(.04)**	-.07	(.04)	-.01	(.05)	-.03	(.04)	-.04	(.05)
	PSS	.65	(.03)***	.45	(.04)***	.40	(.04)***	.37	(.04)***	.44	(.03)***	.36	(.03)***
	SelfDis	-.15	(.03)***	-.05	(.04)	-.04	(.04)	-.01	(.05)	-.20	(.04)***	.02	(.05)
	SelfDis*PSS	-.14	(.03)***	-.12	(.03)**	-.06	(.04)	-.01	(.04)	-.06	(.03)	-.02	(.03)
Dutifulness	Intercept	-.07	(.03)*	-.12	(.04)**	-.07	(.04)	-.01	(.05)	-.03	(.05)	-.03	(.05)
	PSS	.65	(.03)***	.44	(.04)***	.39	(.04)***	.37	(.04)***	.45	(.03)	.35	(.03)***
	Dutifulness	-.06	(.03)	-.10	(.04)**	-.12	(.04)**	.04	(.05)	-.07	(.05)***	-.01	(.05)
	Dutifulness*PSS	-.09	(.03)**	-.15	(.04)***	-.11	(.04)**	.01	(.04)	-.04	(.03)	.01	(.03)
DelibImpuls	Intercept	-.06	(.03)	-.09	(.04)*	-.06	(.04)	-.01	(.05)	-.02	(.04)	-.03	(.05)
	PSS	.65	(.03)***	.43	(.03)***	.40	(.04)***	.36	(.04)***	.46	(.03)***	.35	(.03)***
	DelibImpuls	-.06	(.03)	-.09	(.04)*	-.08	(.04)	-.02	(.05)	-.06	(.04)	.02	(.05)
	DelibImpuls*PSS	-.03	(.03)	-.10	(.03)**	-.08	(.04)*	.01	(.04)	-.01	(.03)	<.01	(.03)
Achieve	Intercept	-.07	(.03)	-.09	(.04)*	-.06	(.04)	-.01	(.05)	-.03	(.04)	-.03	(.05)
	PSS	.65	(.03)***	.44	(.03)***	.40	(.04)***	.37	(.04)***	.46	(.03)***	.35	(.03)***
	Achieve	-.01	(.03)	.02	(.04)	-.03	(.04)	.03	(.05)	-.02	(.04)	<-.01	(.05)
	Achieve*PSS	-.05	(.03)	-.03	(.03)	-.02	(.04)	.01	(.04)	-.02	(.03)	.03	(.03)
Order	Intercept	-.07	(.03)*	-.11	(.04)**	-.07	(.04)	<-.01	(.05)	-.02	(.04)	-.02	(.05)
	PSS	.65	(.03)***	.45	(.04)	.40	(.04)***	.36	(.04)***	.45	(.03)***	.36	(.03)***
	Order	-.08	(.03)*	-.05	(.04)	-.06	(.04)	-.07	(.05)	-.14	(.04)**	.06	(.05)
	Order*PSS	-.07	(.03)*	-.10	(.03)**	-.08	(.04)*	.02	(.04)	-.01	(.03)	.05	(.03)

Note. Conscient = Conscientiousness FIFFM Trait; SelfDis = Self-Discipline FIFFM facet; DelibImpuls = Deliberation vs. Impulsiveness FIFFM facet; Achieve = Achievement Striving FIFFM facet. * $p < .05$; ** $p < .01$; *** $p < .001$

Table A.9

Cognitive and Behavioral Outcomes Predicted by Conscientiousness Facets

Variables		Cognition		Sleep		Social		Fatigue	
		β	*(SE)*	β	*(SE)*	β	*(SE)*	β	*(SE)*
Conscient	Intercept	.02	(.05)	.01	(.05)	-.01	(.05)	-.01	(.04)
	PSS	-.43	(.03)***	-.33	(.04)***	.45	(.04)***	.47	(.03)***
	Conscient	.12	(.05)**	-.02	(.05)	.05	(.05)	-.05	(.04)
	Conscient*PSS	.05	(.03)	.02	(.04)	-.02	(.03)	<-.01	(.03)
SelfDis	Intercept	.03	(.04)	.01	(.05)	-.02	(.05)	-.01	(.04)
	PSS	-.43	(.03)***	-.33	(.04)***	.43	(.04)***	.45	(.03)***
	SelfDis	.16	(.04)***	<.01	(.05)	-.09	(.05)	-.13	(.04)**
	SelfDis*PSS	.07	(.03)*	.02	(.04)	-.07	(.03)	<-.01	(.03)
Dutifulness	Intercept	.03	(.05)	.01	(.05)	-.02	(.05)	-.02	(.04)
	PSS	-.45	(.03)***	-.34	(.04)***	.46	(.04)***	.49	(.03)***
	Dutifulness	.06	(.05)	-.06	(.05)	.09	(.05)	.02	(.04)
	Dutifulness*PSS	.10	(.03)**	.04	(.04)	-.08	(.04)*	-.03	(.04)
DelibImpuls	Intercept	.01	(.05)	<.01	(.05)	<-.01	(.05)	-.01	(.04)
	PSS	-.44	(.03)***	-.33	(.04)***	.44	(.04)***	.48	(.03)***
	DelibImpuls	.06	(.04)	<-.01	(.05)	<-.01	(.05)	-.03	(.04)
	DelibImpuls*PSS	-.01	(.03)	.04	(.04)	<.01	(.04)	-.01	(.03)
Achieve	Intercept	.01	(.05)	<.01	(.05)	.01	(.04)	-.01	(.04)
	PSS	-.44	(.03)***	-.33	(.04)***	.44	(.04)***	.48	(.03)***
	Achieve	.07	(.05)	-.04	(.05)	.10	(.05)*	.01	(.04)
	Achieve*PSS	-.01	(.03)	-.01	(.04)	.06	(.03)	.03	(.03)

(table continues)

Variables		Cognition		Sleep		Social		Fatigue	
		β	*(SE)*	β	*(SE)*	β	*(SE)*	β	*(SE)*
Order	Intercept	.02	(.05)	<.01	(.05)	<-.01	(.05)	-.01	(.04)
	PSS	-.44	(.03)***	-.33	(.04)***	.44	(.04)***	.47	(.03)***
	Order	.10	(.05)*	.04	(.05)	.03	(.05)	-.06	(.04)
	Order*PSS	.03	(.03)	-.01	(.04)	<.01	(.03)	-.02	(.03)

Note. Cognition = Conscient = Conscientiousness FIFFM Trait; SelfDis = Self-Discipline FIFFM facet; DelibImpuls = Deliberation vs. Impulsiveness FIFFM facet; Achieve = Achievement Striving FIFFM facet; Cognition = PROMIS Applied Cognition Abilities; Sleep = PROMIS Sleep Disturbance; Social = PROMIS Ability to Participate in Social Roles and Activities; Fatigue = PROMIS Fatigue. * $p < .05$; ** $p < .01$; *** $p < .001$

Table A.10

Mental Health Outcomes Predicted by Openness Facets

Variables		Dysphoria		Ill Temper		Panic		Insomnia		Lassitude		Checking	
		β	*(SE)*	β	*(SE)*	β	*(SE)*	β	*(SE)*	β	*(SE)*	β	*(SE)*
Openness	Intercept	-.06	(.03)	-.07	(.04)	-.06	(.04)	-.01	(.05)	-.02	(.04)	-.03	(.05)
	PSS	.65	(.03)***	.39	(.03)***	.39	(.04)***	.37	(.04)***	.46	(.03)***	.35	(.03)***
	Openness	.09	(.03)**	-.06	(.04)	-.03	(.04)	.10	(.05)*	.09	(.04)*	-.04	(.05)
	Openness*PSS	.02	(.03)	-.02	(.03)	.04	(.04)	<.01	(.04)	.02	(.03)	.04	(.03)
Intellect	Intercept	-.07	(.03)	-.10	(.04)*	-.07	(.04)	-.01	(.05)	-.03	(.04)	-.03	(.05)
	PSS	.65	(.03)***	.44	(.04)***	.39	(.04)***	.37	(.04)***	.46	(.03)***	.35	(.03)***
	Intellect	.08	(.03)*	-.01	(.04)	<.01	(.04)	.11	(.05)*	.07	(.04)	-.01	(.05)
	Intellect*PSS	-.01	(.03)	-.01	(.03)	-.01	(.04)	.01	(.04)	.04	(.03)	.03	(.03)

(table continues)

Variables		Dysphoria		Ill Temper		Panic		Insomnia		Lassitude		Checking	
		β	*(SE)*	β	*(SE)*	β	*(SE)*	β	*(SE)*	β	*(SE)*	β	*(SE)*
NovelExp	Intercept	-.06	(.03)	-.07	(.04)	-.06	(.04)	-.01	(.05)	-.02	(.04)	-.03	(.05)
	PSS	.65	(.03)***	.39	(.03)***	.40	(.04)***	.37	(.04)***	.46	(.03)***	.35	(.03)***
	NovelExp	.03	(.03)	<.01	(.04)	<-.01	(.04)	.07	(.05)	.05	(.04)	-.02	(.05)
	NovelExp*PSS	<.01	(.03)	.01	(.03)	.03	(.04)	-.01	(.04)	<-.01	(.03)	.03	(.03)
Nontrad	Intercept	-.06	(.03)	-.07	(.04)	-.06	(.04)	-.01	(.05)	-.02	(.04)	-.03	(.05)
	PSS	.65	(.03)***	.40	(.03)***	.40	(.04)***	.37	(.04)***	.46	(.03)***	.35	(.03)***
	Nontrad	.10	(.03)**	-.07	(.04)	<-.01	(.04)	.05	(.05)	.10	(.04)*	-.03	(.05)
	Nontrad*PSS	.04	(.03)	-.03	(.03)	.04	(.04)	<.01	(.04)	.01	(.03)	.02	(.03)

Note. Intellect = Intellectance FIFFM facet; NovelExp = Novel Experiences FIFFM facet; Nontrad = Nontraditionalism FIFFM facet. * $p < .05$; ** $p < .01$; *** $p < .001$

Table A.11

Cognitive and Behavioral Outcomes Predicted by Openness Facets

Variables		Cognition		Sleep		Social		Fatigue	
		β	*(SE)*	β	*(SE)*	β	*(SE)*	β	*(SE)*
Openness	Intercept	.01	(.05)	<.01	(.05)	<-.01	(.05)	-.01	(.04)
	PSS	-.45	(.03)***	-.33	(.04)***	.44	(.04)***	.48	(.03)***
	Openness	-.03	(.04)	-.14	(.05)**	.09	(.04)*	.08	(.04)*
	Openness*PSS	<-.01	(.04)	-.02	(.04)	.03	(.04)	.01	(.03)

(table continues)

Variables		Cognition		Sleep		Social		Fatigue	
		β	*(SE)*	β	*(SE)*	β	*(SE)*	β	*(SE)*
Intellect	Intercept	.01	(.05)	<-.01	(.05)	<-.01	(.05)	-.01	(.04)
	PSS	-.45	(.03)***	-.33	(.04)***	.44	(.04)***	.48	(.03)***
	Intellect	-.03	(.05)	-.11	(.05)*	.06	(.05)	.09	(.04)*
	Intellect*PSS	<.01	(.03)	-.03	(.04)	.02	(.03)	.02	(.03)
NovelExp	Intercept	.01	(.05)	<.01	(.05)	<-.01	(.05)	-.01	(.04)
	PSS	-.45	(.03)***	-.33	(.04)***	.44	(.04)***	.48	(.03)***
	NovelExp	<.01	(.05)	-.08	(.05)	.03	(.05)	-.02	(.04)
	NovelExp*PSS	.02	(.04)	.01	(.04)	<-.01	(.04)	-.02	(.03)
Nontrad	Intercept	.01	(.05)	<.01	(.05)	<-.01	(.05)	-.01	(.04)
	PSS	-.45	(.03)***	-.33	(.04)***	.44	(.04)***	.48	(.03)***
	Nontrad	-.05	(.04)	-.10	(.05)*	.09	(.05)*	.10	(.04)*
	Nontrad*PSS	-.03	(.04)	-.03	(.04)	.06	(.04)	.02	(.03)

Note. Intellect = Intellectance FIFFM facet; NovelExp = Novel Experiences FIFFM facet; Nontrad = Nontraditionalism FIFFM facet; Cognition = PROMIS Applied Cognition Abilities; Sleep = PROMIS Sleep Disturbance; Social = PROMIS Ability to Participate in Social Roles and Activities; Fatigue = PROMIS Fatigue. * $p < .05$; ** $p < .01$; *** $p < .001$

Table A.12

Mental Health Outcomes Predicted by Additional Facets

Variables		Dysphoria		Ill Temper		Panic		Insomnia		Lassitude		Checking	
		β	*(SE)*	β	*(SE)*	β	*(SE)*	β	*(SE)*	β	*(SE)*	β	*(SE)*
Dependency	Intercept	-.07	(.03)	-.08	(.04)*	-.07	(.04)	-.01	(.05)	-.02	(.04)	-.04	(.05)
	PSS	.65	(.03)***	.38	(.03)***	.39	(.04)***	.37	(.04)***	.45	(.03)***	.35	(.03)***
	Dependency	.02	(.03)	.06	(.04)	.06	(.04)	-.04	(.05)	.08	(.04)	.10	(.05)*
	Dependency*PSS	.04	(.03)	.07	(.03)*	.09	(.04)*	<-.01	(.04)	<.01	(.03)	.05	(.03)
EmoRes	Intercept	-.06	(.03)	-.09	(.04)**	-.06	(.04)	-.01	(.05)	-.03	(.04)	-.04	(.05)
	PSS	.65	(.03)***	.44	(.03)***	.39	(.04)***	.37	(.04)***	.46	(.03)***	.35	(.03)***
	EmoRes	.03	(.03)	.10	(.04)**	.03	(.04)	<.01	(.05)	.05	(.04)	.11	(.05)*
	EmoRes*PSS	.04	(.03)	.08	(.03)*	.02	(.04)	.06	(.04)	.04	(.03)	.08	(.03)**
UnusualExp	Intercept	-.07	(.04)*	-.10	(.04)**	-.07	(.04)	-.03	(.05)	-.03	(.05)	-.05	(.05)
	PSS	.65	(.03)***	.44	(.03)***	.40	(.04)***	.37	(.04)***	.45	(.03)***	.35	(.03)***
	UnusualExp	.05	(.04)	.07	(.04)	.12	(.04)**	.02	(.05)	.04	(.05)	.10	(.05)*
	UnusualExp*PSS	.09	(.03)**	.12	(.03)***	.15	(.04)***	.08	(.04)*	.04	(.03)	.13	(.03)***
EccenBelief	Intercept	-.06	(.03)	-.12	(.03)**	-.07	(.04)	-.01	(.05)	-.02	(.04)	-.03	(.05)
	PSS	.65	(.03)***	.44	(.04)***	.39	(.04)***	.37	(.04)***	.46	(.03)***	.35	(.03)***
	EccenBelief	-.02	(.03)	.09	(.03)**	.11	(.04)**	.03	(.05)	-.05	(.04)	.11	(.05)*
	EccenBelief*PSS	-.01	(.03)	.10	(.04)**	.07	(.04)	.09	(.04)*	.01	(.03)	.05	(.03)

Note. EmoRes = Emotional Resonance FIFFM facet; UnusualExp = Unusual Experiences FIFFM facet; EccenBelief = Eccentric Beliefs FIFFM facet. * $p < .05$; ** $p < .01$; *** $p < .001$

Table A.13

Cognitive and Behavioral Outcomes Predicted by Additional Facets

Variables		Cognition		Sleep		Social		Fatigue	
		β	*(SE)*	β	*(SE)*	β	*(SE)*	β	*(SE)*
Dependency	Intercept	.01	(.05)	<.01	(.05)	.01	(.05)	<-.01	(.04)
	PSS	-.44	(.03)***	-.34	(.04)***	.44	(.04)***	.48	(.03)***
	Dependency	-.07	(.05)	.06	(.05)	<.01	(.05)	.03	(.04)
	Dependency*PSS	-.02	(.03)	-.01	(.04)	-.03	(.04)	-.03	(.03)
EmoRes	Intercept	.01	(.05)	.01	(.05)	-.01	(.05)	-.01	(.04)
	PSS	-.44	(.03)***	-.33	(.04)***	.44	(.04)***	.48	(.03)***
	EmoRes	-.02	(.05)	.01	(.05)	.06	(.05)	.03	(.04)
	EmoRes*PSS	-.01	(.03)	-.06	(.04)	.03	(.03)	.02	(.03)
UnusualExp	Intercept	.02	(.05)	.02	(.05)	-.01	(.05)	-.03	(.04)
	PSS	-.45	(.03)***	-.33	(.04)***	.45	(.04)***	.49	(.03)***
	UnusualExp	-.03	(.05)	.02	(.05)	-.06	(.05)	-.07	(.04)
	UnusualExp*PSS	-.03	(.03)	-.07	(.04)	.04	(.04)	.07	(.03)*
EccenBelief	Intercept	-.01	(.05)	-.01	(.05)	.02	(.05)	<.01	(.04)
	PSS	-.45	(.03)***	-.33	(.04)***	.44	(.04)***	.48	(.03)***
	EccenBelief	.02	(.05)	-.01	(.05)	-.06	(.05)	-.04	(.04)
	EccenBelief*PSS	.04	(.04)	-.04	(.04)	-.06	(.04)	-.01	(.04)

Note. EmoRes = Emotional Resonance FIFFM facet; UnusualExp = Unusual Experiences FIFFM facet; EccenBelief = Eccentric Beliefs FIFFM facet; Cognition = PROMIS Applied Cognition Abilities; Sleep = PROMIS Sleep Disturbance; Social = PROMIS Ability to Participate in Social Roles and Activities; Fatigue = PROMIS Fatigue. * $p < .05$; ** $p < .01$; *** $p < .001$

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